INDEX OF SHEETS

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2	KEY MAP SHEET	KS-01
3	GEOMETRY SHEET	GS-01
4-7	EXISTING CONDITIONS	EX-01 TO EX-04
8-11	STREAM RESTORATION PLAN	SR-01 TO SR-04
12-17	STREAM RESTORATION DETAILS	DE-01 TO DE-06
18-20	STREAM PROFILE	PR-01 TO PR-03
21-25	CROSS SECTIONS	XS-01 TO XS-05
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PROJECT SUMMARY

TOTAL LENGTH OF STREAM RESTORED: 2,500 LINEAR FEET
STREAM USE CLASS: III
STREAM CLOSURE PERIOD: October 1st - April 20th
LOAD REDUCTIONS AND IA CREDIT SUMMARY:

REACH	PROTOCOL	IA CREDIT	TSS REDUCTION	TN REDUCTION	TP REDUCTION
REACH 1	PROTOCOL 1	6.8 AC	43.3 TONS/YR	73.5 LBS/YR	12.6 LBS/YR
	PROTOCOL 2	0.8 AC	0 TONS/YR	43.8 LBS/YR	0 LBS/YR
	PROTOCOL 5	1.4 AC	8.9 TONS/YR	15.2 LBS/YR	2.6 LBS/YR
TOTAL	TOTAL	9.0 AC	52.2 TONS/YR	132.5 LBS/YR	15.2 LBS/YR

REACH	PROTOCOL	IA CREDIT	TSS REDUCTION	TN REDUCTION	TP REDUCTION
REACH 2	PROTOCOL 1	44.9 AC	283.3 TONS/YR	489.6 LBS/YR	82.6 LBS/YR
	PROTOCOL 2	1.8 AC	0 TONS/YR	98.7 LBS/YR	0 LBS/YR
TOTAL	TOTAL	46.7 AC	283.3 TONS/YR	588.3 LBS/YR	82.6 LBS/YR

REACH	PROTOCOL	IA CREDIT	TSS REDUCTION	TN REDUCTION	TP REDUCTION
TRIBUTARY	PROTOCOL 5	0.8 AC	5.1 TONS/YR	8.7 LBS/YR	1.5 LBS/YR
TOTAL	TOTAL	0.8 AC	5.1 TONS/YR	8.7 LBS/YR	1.5 LBS/YR

PROJECT SUMMARY

1. TOTAL SITE AREA:	15.1 AC
2. TOTAL DISTURBED AREA:	3.3 AC
3. TOTAL IMPERVIOUS AREA WITHIN THE LOD:	0.21 AC
4. TOTAL AREA TO BE VEGETATIVELY STABLIZED:	3.1 AC
5. PROPOSED IMPERVIOUS AREA:	0 AC
6. IMPERVIOUS AREA TREATED AS MS4 CREDIT:	56.5 AC
7. ESTIMATED CUT:	4799 CY
8. ESTIMATED FILL:	1204 CY
9. NET EXPORT:	3595 CY

WOODLAND RUN STREAM RESTORATION

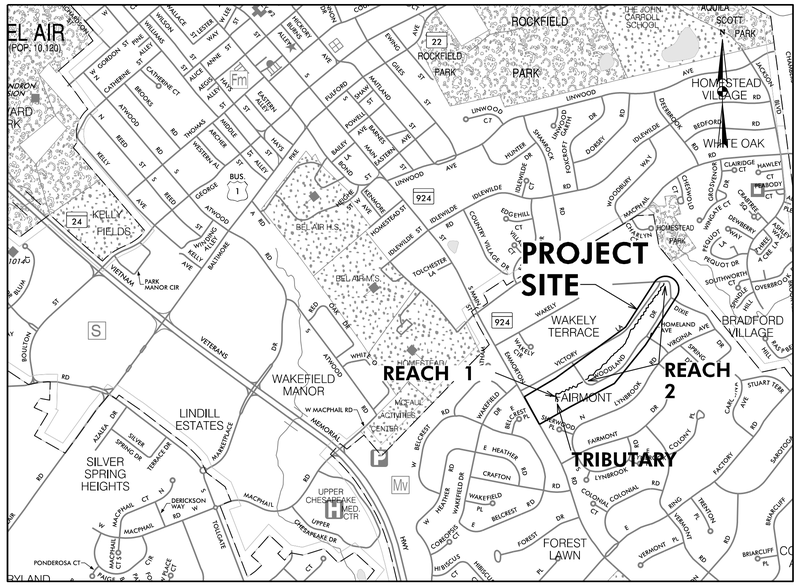
95% DESIGN DEVELOPMENT

FEBRUARY 2025

BID NO. XXXXX

WATERSHED PROTECTION AND RESTORATION OFFICE

HARFORD COUNTY, MARYLAND



LOCATION MAP

SCALE 1" = 1,000'

GENERAL NOTES

1. SPECIFICATIONS: ALL WORK IS TO BE PERFORMED IN ACCORDANCE MARYLAND STATE HIGHWAY ADMINISTRATIONS STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS DATED JULY 2024 AND THE MOST RECENT REVISIONS THEREOF AND ADDITIONS THERETO.

2. UTILITIES: UTILITY LOCATIONS SHOWN ON THE PLANS ARE BASED ON LIMITED INFORMATION AVAILABLE. HOWEVER, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE ACCURACY OF THIS INFORMATION. THE COST OF REPAIR OR REPLACEMENT OF ANY SUCH FACILITIES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE BORNE BY HIM.

   CONTACT "MISS UTILITY" PHONE 1-800-257-7777, 48 HOURS PRIOR TO THE START OF WORK. THERE SHOULD BE NO EXCAVATION UNTIL THE LOCATIONS OF UNDERGROUND UTILITIES HAVE BEEN DETERMINED.

3. STANDARD DETAILS: REFERENCE MADE TO STANDARDS ARE TAKEN FROM THE HARFORD COUNTY ROAD CODE "BOOK OF STANDARD DETAILS" AND FROM "THE MARYLAND STATE HIGHWAY ADMINISTRATION'S BOOK OF STANDARDS-HIGHWAY AND INCIDENTAL STRUCTURES", IT WILL BE THE CONTRACTOR'S RESPONSIBILITY THAT THE STANDARD DRAWINGS IN HIS POSSESSION ARE THE LATEST REVISED STANDARDS UP TO AND INCLUDING THE DATE OF THE ADVERTISEMENT OF THIS CONTRACT.

4. RIGHT-OF-WAY LINES: RIGHT-OF-WAY LINES SHOWN ON THESE PLANS DO NOT INCLUDE EASEMENTS. THEY ARE FOR ASSISTANCE IN INTERPRETING THE PLANS ONLY. THESE LINES DO NOT REPRESENT THE OFFICIAL PROPERTY ACQUISITION LINES. FOR OFFICIAL FEE RIGHT-OF-WAY AND EASEMENT INFORMATION, SEE THE APPROPRIATE RIGHT-OF-WAY PLATS.

5. SOIL CONSERVATION: THE CONTRACTOR SHALL NOT DISTURB THE EXISTING VEGETATION OUTSIDE THE LIMITS OF DISTURBANCE. SOIL STABILIZATION WILL CONFORM TO 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. THE CONTRACTOR WILL OBTAIN APPROVAL OF THE HARFORD COUNTY SOIL CONSERVATION DISTRICT FOR HIS PLANS IN CONTROLLING SEDIMENT EROSION FOR THE BORROW AREA AND DISPOSING OF ANY WASTE EXCAVATION.

6. EXISTING MAILBOXES AND EXISTING SIGNS: ALL EXISTING MAILBOXES, SIGNS AND PAPER BOXES DISTURBED DURING CONSTRUCTION SHALL BE TEMPORARILY RESET IMMEDIATELY AND PERMANENTLY RESET AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE INCIDENTAL TO ALL OTHER ITEMS IN THE CONTRACT.

7. SURVEYS:

   HORIZONTAL CONTROL - COORDINATES SHOWN ON THE PLANS ARE BASED ON NAD83(2011) PER LEICA SMARTNET US SURVEY FEET.

   VERTICAL CONTROL - ELEVATIONS SHOWN ON THE PLANS ARE BASED ON NAVD88 (GEOID12A) AS PER LEICA SMARTNET.

   ONLY THOSE CONTROL POINTS SHOWN ON THESE PLANS ARE TO BE USED FOR THE CONSTRUCTION OF THIS PROJECT.

FIELD VERIFICATION

I HEREBY CERTIFY THAT I COMPLETED A FIELD VERIFICATIN TO THE INFORMATION SHOWN ON THE PLANS ON JUNE 15, 2021 AND THAT THE INFORMATION SHOWN ON THE PLANS IS IN AGREEMENT WITH THE ACTUAL FIELD CONDITIONS.

PRINTED NAME

SIGNED DATE

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILILTY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE 'AS-BUILT' PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

ENGINEER'S SIGNATURE DATE

PRINTED NAME MD PE REGISTRATION NO.

Owner:

HARFORD COUNTY
212 SOUTH BOND STREET
1ST FLOOR
BEL AIR, MD 21014

Prepared By :

RK&K
P: 410.728.2900
700 East Pratt Street, Suite 500 | Baltimore, MD 21202
Engineers | Construction Managers | Planners | Scientists
www.rkk.com
Responsive People | Creative Solutions

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.LICENSE NO. XXXXX, EXPIRATION DATE: XX/XX/XXXX.

PROJECT CONTRACT #59882	Revisions
GP #GRA-002122-2022	
SIGN AND SEAL	

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

Drawn By : NAH/MBR	Scale : NOT TO SCALE
Designed By : NAH	Date : FEBRUARY 2025
Reviewed By : RMO	
Drawing No. GN-01 of GN-01	Sheet No. 01 of 47

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10

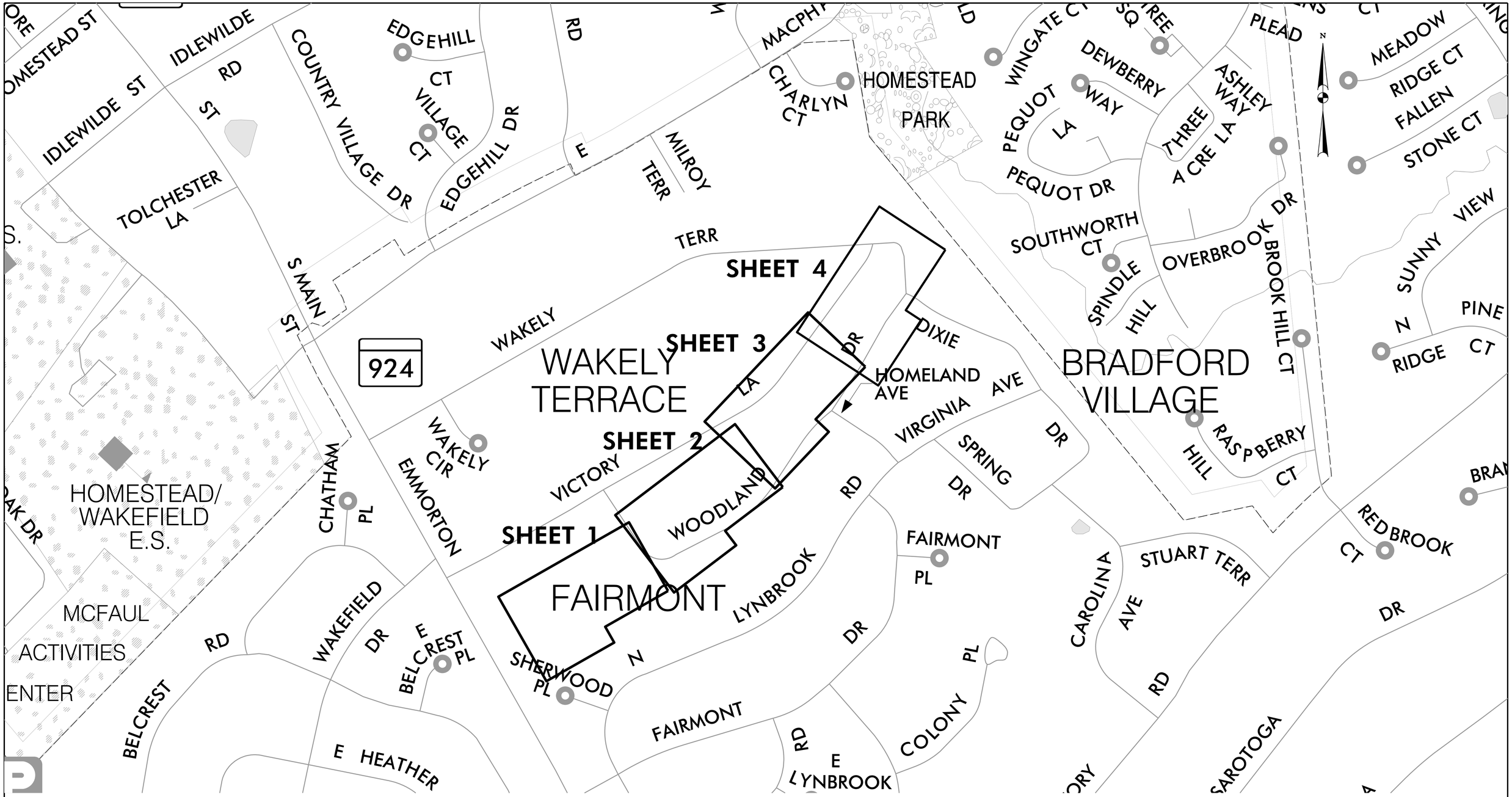
HCG BILLING ID No.:

HCG DWG ID No.:

SCALE: 1 inch

BY: sbazan -

PLOTTED: 2/28/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\01_pGN-0000-Woodland.dgn



200' 0 200' 400'
SCALE: 1" = 200'

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

KEY SHEET

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700 East Pratt Street, Suite 500 | Baltimore, MD 21202
Engineers | Construction Managers | Planners | Scientists
www.rkk.com
Responsive People | Creative Solutions

Drawn By : EH/HA	Scale : 1" = 200'
Designed By : AJN/EH/HA	Date : FEBRUARY 2025
Reviewed By : KDG	
Drawing No. KS-01 of KS-01	Sheet No. 02 of 47

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10

HCG BILLING ID No.:

HCG DWG ID No.:

SCALE: 1" = 200'

BY: sbazan –

PLOTTED: 2/28/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\02_pKS-0000-Woodland.dgn



LOCAL SURVEY CONTROL			
POINT NO.	EASTING	NORTHING	ELEV.
MRC 1	1,499,826.0797	677,406.9986	329.61
MRC 2	1,499,420.4010	677,174.2908	341.86
MRC 3	1,499,990.5641	677,151.7742	317.80
MRC 4	1,500,124.2826	677,258.0587	312.41
MRC 5	1,500,269.3525	677,370.6736	308.36
MRC 6	1,500,382.0000	677,539.5288	307.92
MRC 7	1,500,484.7146	677,603.8059	302.65
MRC 8	1,500,573.7010	677,759.5215	298.55
MRC 9	1,500,595.9381	677,899.4066	300.37
MRC 10	1,500,731.8652	678,046.6454	296.29
MRC 11	1,500,871.1928	678,275.5855	289.43
MRC 12	1,500,977.9019	678,471,683	283.12
MRC 13	1,500,513.5833	677,654.3221	301.21
MRC 15	1,500,066.4854	677,110.4641	317.48
MRC 16	1,499,752.6935	677,014.637	321.39
MRC 30	1,500,599.0226	678,450.7515	311.54
JPH 6	1,500,052.4549	677,407.4576	323.45
JPH 7	1,499,921.0562	676,956.7904	328.66
JPH 8	1,499,769.4338	676,880.2236	333.33
JPH 9	1,499,559.2385	676,965.5072	326.76
JPH 10	1,499,437.2051	677,159.8856	341.46
JPH 50	1,499,954.6066	677,201.7585	319.79
JPH 51	1,499,895.7727	677,143.0182	317.36
2736	1,501,084.2226	678,347.282	282.69

ALIGNMENT CURVE TABLE						
Curve #	RADIUS	LENGTH	CHORD LENGTH	ST EASTING	ST NORTHING	MO
C1	200.00	1.21	1.21	1499647.5859	676870.3550	0.001
C2	11.77	3.89	3.87	1499652.4981	676894.7757	0.160
C3	28.84	10.79	10.72	1499651.5144	676907.0395	0.503
C4	184.13	14.65	14.65	1499632.8590	676944.8267	0.146
C5	16.14	12.28	11.99	1499580.4290	676967.3195	1.154
C6	10.65	17.58	15.85	1499617.0933	676960.7349	3.428
C7	8.43	14.20	12.58	1499635.3074	676989.9337	2.816
C8	12.24	9.93	9.66	1499661.7446	676990.8057	0.993
C9	27.98	10.64	10.58	1499695.6006	677007.2003	0.505
C10	8.00	8.62	8.21	1499712.1215	677020.3950	1.133
C11	8.00	10.46	9.73	1499740.4378	677018.5109	1.649
C12	12.41	18.32	16.70	1499758.3059	677040.0908	3.231
C13	9.69	17.85	15.43	1499788.9079	677039.8400	3.830
C14	8.00	15.16	12.99	1499804.2119	677065.8721	3.332
C15	8.00	13.45	11.92	1499832.4592	677064.3254	2.664
C16	9.20	15.76	13.90	1499848.7514	677084.7421	3.174
C17	13.68	24.04	21.07	1499887.1867	677077.0422	4.948
C18	15.41	14.15	13.66	1499913.2415	677108.5501	1.596
C19	102.15	14.83	14.82	1499941.9520	677126.1604	0.269
C20	10.95	7.91	7.73	1500050.2304	677193.3737	0.705
C21	5.73	7.98	7.35	1500056.5845	677208.8524	1.332
C22	12.53	15.59	14.60	1500074.6929	677212.7341	2.347
C23	10.17	17.42	15.37	1500090.8568	677230.7152	3.505
C24	7.41	15.58	12.86	1500117.1107	677229.2223	3.730
C25	10.13	18.69	16.15	1500127.9993	677244.9959	4.014
C26	9.86	18.50	15.90	1500150.8969	677252.2945	4.029
C27	13.96	25.43	22.06	1500162.7569	677272.6031	5.400
C28	11.83	23.64	19.90	1500190.3906	677284.7239	5.427
C29	10.38	19.59	16.81	1500201.7441	677310.1464	4.288
C30	9.33	17.12	14.82	1500231.3184	677321.0873	3.659
C31	6.87	12.33	10.74	1500238.1891	677350.1797	2.583
C32	10.41	17.76	15.68	1500258.1096	677357.5801	3.561
C33	15.71	24.59	22.16	1500267.4486	677387.3375	4.570
C34	14.41	15.68	14.41	1500295.1317	677405.5231	2.647
C35	14.63	16.40	15.55	1500306.4217	677432.0961	2.237
C36	5.23	2.19	2.17	1500335.7490	677452.6122	0.114
C37	77.62	16.02	15.99	1500422.8437	677540.7980	0.413
C38	44.49	0.21	0.21	1500457.4902	677565.9197	0.000
C39	21.23	7.82	7.78	1500481.3209	677581.9971	0.359

ALIGNMENT CURVE TABLE						
Curve #	RADIUS	LENGTH	CHORD LENGTH	ST EASTING	ST NORTHING	MO
C40	22.45	13.27	20.46	1500512.8524	677590.6759	3.961
C41	9.96	13.04	12.13	1500521.3526	677631.4415	2.059
C42	9.96	13.73	12.67	1500548.1006	677650.5233	2.274
C43	9.96	13.51	12.50	1500550.7046	677678.1133	2.205
C44	9.96	14.11	12.96	1500574.4541	677697.1473	2.396
C45	9.96	12.18	11.44	1500573.6016	677733.0082	1.806
C46	9.96	12.32	11.55	1500599.3037	677758.9152	1.845
C47	9.96	14.32	13.11	1500597.0025	6777917758.	2.464
C48	9.96	11.94	11.24	1500624.4707	677813.0496	1.737
C49	9.96	11.80	11.12	1500629.7077	677843.6713	1.698
C50	9.96	10.85	10.32	1500653.5730	677861.1877	1.442
C51	9.96	13.79	12.71	1500660.4275	677886.3202	2.293
C52	9.96	11.19	10.61	1500685.8693	677897.7404	1.531
C53	9.93	10.54	10.05	1500697.4528	677914.6958	1.367
C54	9.92	14.59	13.31	1500743.5456	677926.9600	2.564
C55	15.57	23.79	21.54	1500740.4472	677961.2615	4.328
C56	11.52	19.21	17.06	1500772.7094	677980.5706	3.780
C57	9.87	16.30	14.50	1500778.7647	678010.2320	3.178
C58	9.87	19.70	16.58	1500812.4079	678023.0411	4.521
C59	9.78	19.95	16.67	1500808.1322	678058.3192	4.659
C60	17.29	32.72	28.05	1500834.2840	678075.3756	7.180
C61	17.21	28.04	25.04	1500840.5476	678116.4959	5.401
C62	8.07	14.21	12.44	1500873.5634	678148.8185	2.931
C63	9.00	15.83	13.87	1500872.7441	678168.1920	3.265
C64	10.39	12.96	12.14	1500886.2016	678184.8867	1.956
C65	13.66	11.17	10.86	1500892.2697	678206.7435	1.126
C66	19.59	4.22	4.21	1500910.9555	678232.1744	0.113
C67	38.03	16.60	16.47	1500921.9156	678248.9650	0.902
C68	21.15	17.00	16.54	1500945.3267	678268.5119	1.685
C69	20.30	21.04	20.11	1500956.8798	678294.5234	2.665

ALIGNMENT CURVE TABLE						
Curve #	RADIUS	LENGTH	CHORD LENGTH	ST EASTING	ST NORTHING	MO
C70	20.48	12.23	12.05	1500969.9373	678315.3288	0.906
C71	13.29	11.37	11.02	1501001.0992	678322.5645	1.197
C72	9.21	14.61	13.13	1501024.2235	678337.7612	2.749
C73	9.21	12.38	11.47	1501031.4810	678358.4794	2.002
C74	9.21	13.04	11.98	1501048.5072	678368.1420	2.214
C75	11.54	9.19	8.95	1501052.5058	678393.8150	0.902
C76	6.81	9.08	8.42	1501060.7905	678411.4781	1.458
C77	12.27	10.37	10.06	1501054.9470	678426.1928	1.079

BASELINE LINE TABLE			
LINE #	STATION	ST EASTING	ST NORTHING
L12	102+07.56	1499719.9044	677023.0028
L13	102+39.04	1499749.2481	677022.6406
L14	102+77.02	1499773.9753	677045.8791
L15	103+10.98	1499802.1676	677047.7363
L16	103+44.40	1499815.5474	677072.2245
L17	103+76.51	1499843.4222	677069.0074
L18	104+08.89	1499861.6251	677089.9973
L19	104+61.59	1499906.5130	677085.4255
L20	104+99.82	1499922.4755	677118.6177
L21	105+35.54	1499955.3458	677132.4999
L22	300+00.00	1500015.8654	677168.6546
L23	300+50.24	1500054.5106	677199.8162
L24	300+67.49	1500062.4373	677213.2981
L25	300+95.34	1500086.9386	677220.6894
L26	301+23.53	1500105.3325	677235.8711
L27	301+52.63	1500128.1609	677235.8046
L16	103+44.40	1499815.5474	677072.2245
L28	301+80.51	1500140.7016	677254.9721
L29	302+09.55	1500163.2530	677262.3081
L30	302+45.29	1500179.5084	677286.9546
L31	302+80.03	1500204.3020	677298.9509
L32	303+11.11	1500212.8150	677322.7932
L33	303+46.81	1500241.3631	677331.9773
L34	303+77.61	1500245.3040	677358.2236

BASELINE LINE TABLE			
LINE #	STATION	ST EASTING	ST NORTHING
L35	304+08.19	1500269.0080	677368.8550
L36	304+51.33	1500281.6934	677404.3092
L37	304+80.50	1500305.2341	677415.8022
L38	305+13.23	1500315.6219	677444.6334
L39	305+37.06	1500337.5561	677453.8126
L40	106+74.91	1500435.1560	677551.0025
L41	107+01.97	1500457.6625	677566.0354
L42	107+38.33	1500488.4564	677585.0922
L43	107+85.81	1500524.5254	677607.4820
L44	108+23.02	1500527.4116	677641.9481
L45	108+59.14	1500554.0455	677661.7100
L46	108+89.39	1500556.4473	677689.2135
L47	109+23.18	1500580.0599	677708.8299
L48	109+60.39	1500577.5307	677743.7492
L49	109+99.24	1500603.1970	677769.7867
L50	110+36.40	1500602.6383	677803.6175
L51	310+72.13	1500630.4731	677822.5518
L52	311+05.06	1500635.5835	677853.1178
L53	311+35.63	1500659.4378	677869.6822
L54	311+66.09	1500669.1107	677895.6073
L55	311+94.17	1500694.0633	677904.4823
L56	312+15.48	1500705.0150	677921.3219
L57	312+60.13	1500742.5627	677937.5825
L58	313+07.70	1500753.9100	677978.0808

BASELINE LINE TABLE			
LINE #	STATION	ST EASTING	ST NORTHING
L59	313+45.87	1500782.4121	677994.6047
L60	313+78.22	1500786.9137	678022.2313
L61	314+23.69	1500819.2335	678041.1559
L62	314+64.08	1500815.3124	678073.3596
L63	315+15.88	1500848.1875	678099.7382
L64	315+62.33	1500849.9928	678139.6885
L65	316+01.82	1500877.4856	678160.6260
L66	316+28.58	1500877.1100	678181.3553
L67	316+49.30	1500892.8184	678195.0592
L68	316+72.16	1500896.1163	678216.9006
L69	316+97.67	1500913.5470	678235.4904
L70	317+30.14	1500933.4295	678260.7432
L71	317+61.35	1500954.5381	678282.2553
L72	317+94.87	1500969.9373	678309.8141
L73	318+23.37	1500994.8732	678322.5645
L74	318+45.33	1501010.6918	678336.5717
L75	318+73.53	1501032.5791	678347.8870
L76	318+96.55	1501037.6539	678368.1420
L77	319+21.07	1501054.5874	678382.1884
L78	319+42.17	1501054.4789	678402.6435
L79	319+62.11	1501060.3994	678419.8907
L80	319+80.81	1501052.0624	678435.8308

NOT FOR CONSTRUCTION

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700 East Pratt Street, Suite 500 | Baltimore, MD 21202
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www.rkk.com
Responsive People | Creative Solutions

100' 0 100' 200'
SCALE: 1"=100'

PROFESSIONAL CERTIFICATION

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PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

GEOMETRY SHEET

Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO

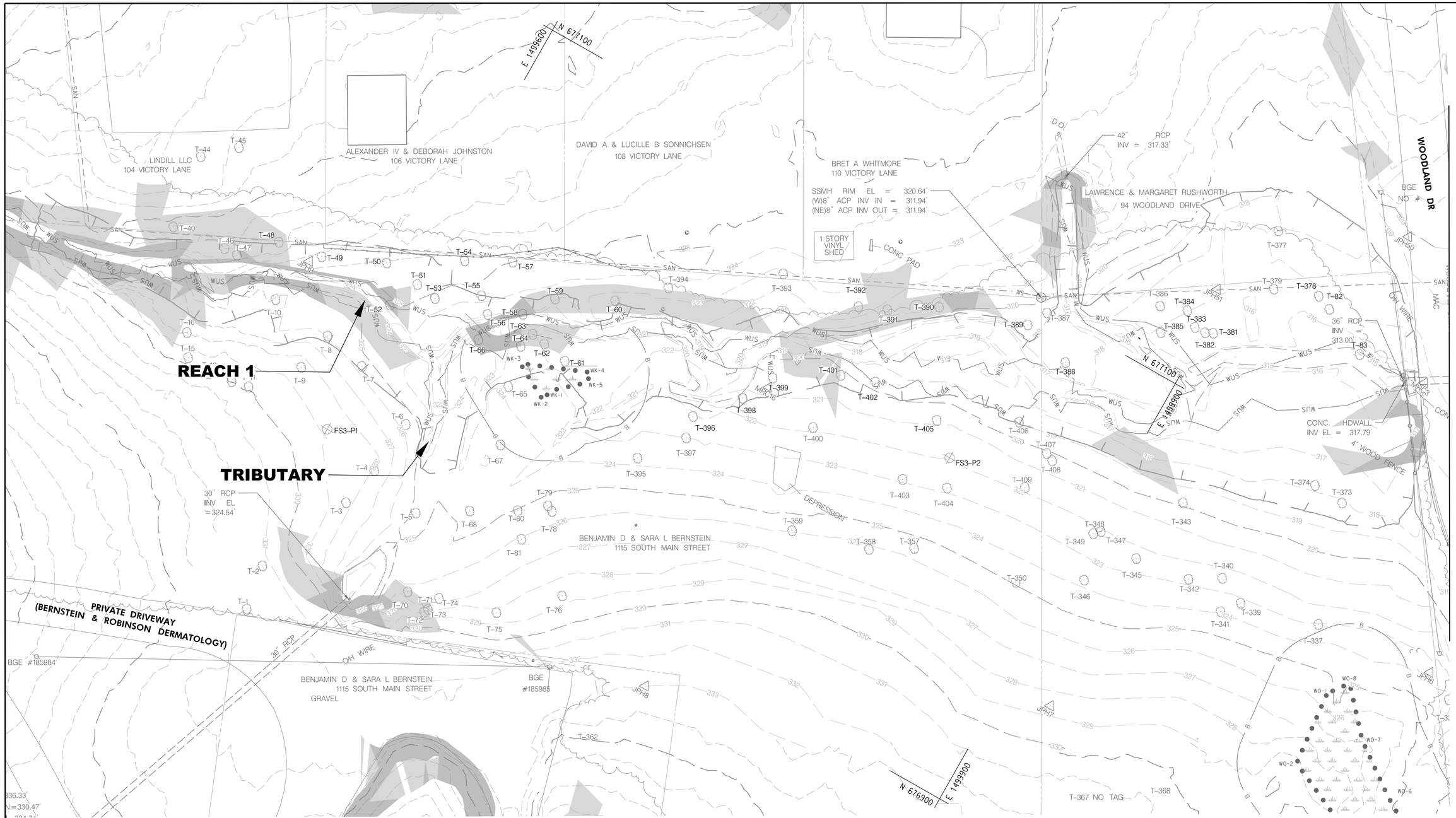
Scale : 1" = 100'
Date : FEBRUARY 2025

Drawing No. GS-01 of GS-01
Sheet No. 03 of 47

ADC MAP: 21 GRID: H10
TAX MAP: 0049 GRID: 0003C
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1 inch

BY: nhoward -

PLOTTED: 2/10/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\03_pGS-P000_Woodland.dgn



MATCHLINE, SEE EX-02

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10

HCG BILLING ID No.:

HCG DWG ID No.:

LEGEND

- EXISTING SANITARY SEWER
- WETLAND BOUNDARY
- 25 FT WETLAND BUFFER
- WATERS OF THE US
- EXISTING 100 YEAR FLOODPLAIN
- ROW/PROPERTY BOUNDARY
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- TRAVERSE POINT
- WETLAND PATTERN
- WOODS LINE
- WETLAND DATA POINT
- EXISTING TREE
- SANITARY SEWER CLEANOUT
- UTILITY POLE
- FOREST PLOT POINT
- 15% TO 25% SLOPES
- 25%+ SLOPES

20' 0 20' 40'
SCALE: 1" = 20'

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PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

EXISTING CONDITIONS PLAN

Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO
Drawing No. EX-01 of EX-04

Scale : 1" = 20'
Date : FEBRUARY 2025
Sheet No. 04 of 47

BY: nhoward -

PLOTTED: 2/24/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\04_pEX-0001-Woodland.dgn

MATCH LINE, SEE EX-01

MATCH LINE, SEE EX-03

JOHNNY ZALAF
101 WOODLAND DRIVE

JAMES E BARNES
208 VICTORY LANE

GENE H & PENNY L EBERTS
216 VICTORY LANE

ZACKARY C & AMANDA M LOREK
230 VICTORY LANE

MICHAEL J & KIMBERLY A STRITZINGER
232 VICTORY LANE

MICHAEL D COALE
240 VICTORY LANE

E 1500080
N 677420

N

REACH 2

EXISTING BRIDGES AND DEBRIS TO BE REMOVED AND DISPOSED OF

MANHOLE 46
RIM EL = 311.24'
INV IN = 305.05'
INV OUT = 304.98'

MANHOLE 45
RIM EL = 304.92'
INV IN = 296.32'
INV OUT = 296.31'

36" RCP
INV EL = 312.77'

18" CMP
INV EL = 307.73

48" CMP
INV EL = 301.84

48" CMP
INV EL = 301.78

4" HDPE
INV EL = 307.84'

4" HDPE
INV EL = 309.00 ±

4" HDPE
INV EL = 303.15

12" INV EL = 316.35

12" INV EL = 316.62

4' SPLIT RAIL FIREWOOD BIN

4' SPLIT RAIL

6' PRIVACY FENCE

7' PRIVACY FENCE

4FT HIGH 4IN PVC WELL?

STONE PATH

DOWNED SILTFENCE

BRIDGE

BRICK PAVERS

CONC

STONE

GRASS

GRAVEL

SHED

DIR ONLY

THALWEG

EROSION AREAS

2.0 STY BRICK
F. F. ELEV. = 313.11'
THOMAS A & WF HECKMAN
105 WOODLAND DRIVE

B. F. ELEV. = 313.20'
1.0 STY FRAME WALK OUT BASEMENT

TOMMIE LARK & FRANCIS A & CARRIE L MARTIN
109 WOODLAND DRIVE

PAUL B & LINDA C RADCLIFFE
109-A WOODLAND DRIVE

NANCE SEIFRIT
109-B WOODLAND DRIVE

WOODLAND DRIVE

BGE #210334

E 1500080
N 677060

N 677420
E 1500520

CcB2
GnB

MAC

MRC4 MRC5 MRC15

FS2-P1

OIP

WA-1B WA-2B WA-3B WA-4B WA-5B
WB-1 WB-2 WB-3 WB-4 WB-5 WB-6 WB-7 WB-8 WB-9 WB-10 WB-11 WB-12 WB-13 WB-14

T-84 T-85 T-86 T-87 T-88 T-89 T-90 T-91 T-92 T-93 T-94 T-95 T-96 T-97 T-98 T-99 T-100 T-101 T-102 T-103 T-104 T-105 T-106 T-106A T-107 T-108 T-109 T-110 T-111 T-112 T-113 T-114 T-115 T-116 T-117 T-118 T-120 T-121 T-122 T-123 T-124 T-125 T-126 T-163 T-164 T-165 T-166 T-167 T-168 T-169 T-170 T-171 T-172 T-173 T-174 T-175 T-176 T-177 T-178 T-179 T-180 T-181 T-184 T-185 T-186 T-187 T-188 T-189 T-190 T-191 T-192 T-193 T-194 T-195 T-196 T-197 T-198 T-199 T-200 T-201 T-202 T-203 T-204 T-205 T-206 T-207 T-208 T-209

LEGEND

- EXISTING SANITARY SEWER
- WETLAND BOUNDARY
- 25 FT WETLAND BUFFER
- WATERS OF THE US
- EXISTING 100 YEAR FLOODPLAIN
- ROW/PROPERTY BOUNDARY
- 320 EXISTING MAJOR CONTOUR
- 321 EXISTING MINOR CONTOUR
- TRAVERSE POINT
- WETLAND PATTERN
- WOODS LINE
- WK-1 WETLAND DATA POINT
- EXISTING TREE
- SANITARY SEWER CLEANOUT
- UTILITY POLE
- FOREST PLOT POINT
- 15% TO 25% SLOPES
- 25%+ SLOPES

20' 0 20' 40'
SCALE: 1" = 20'

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PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

EXISTING CONDITIONS

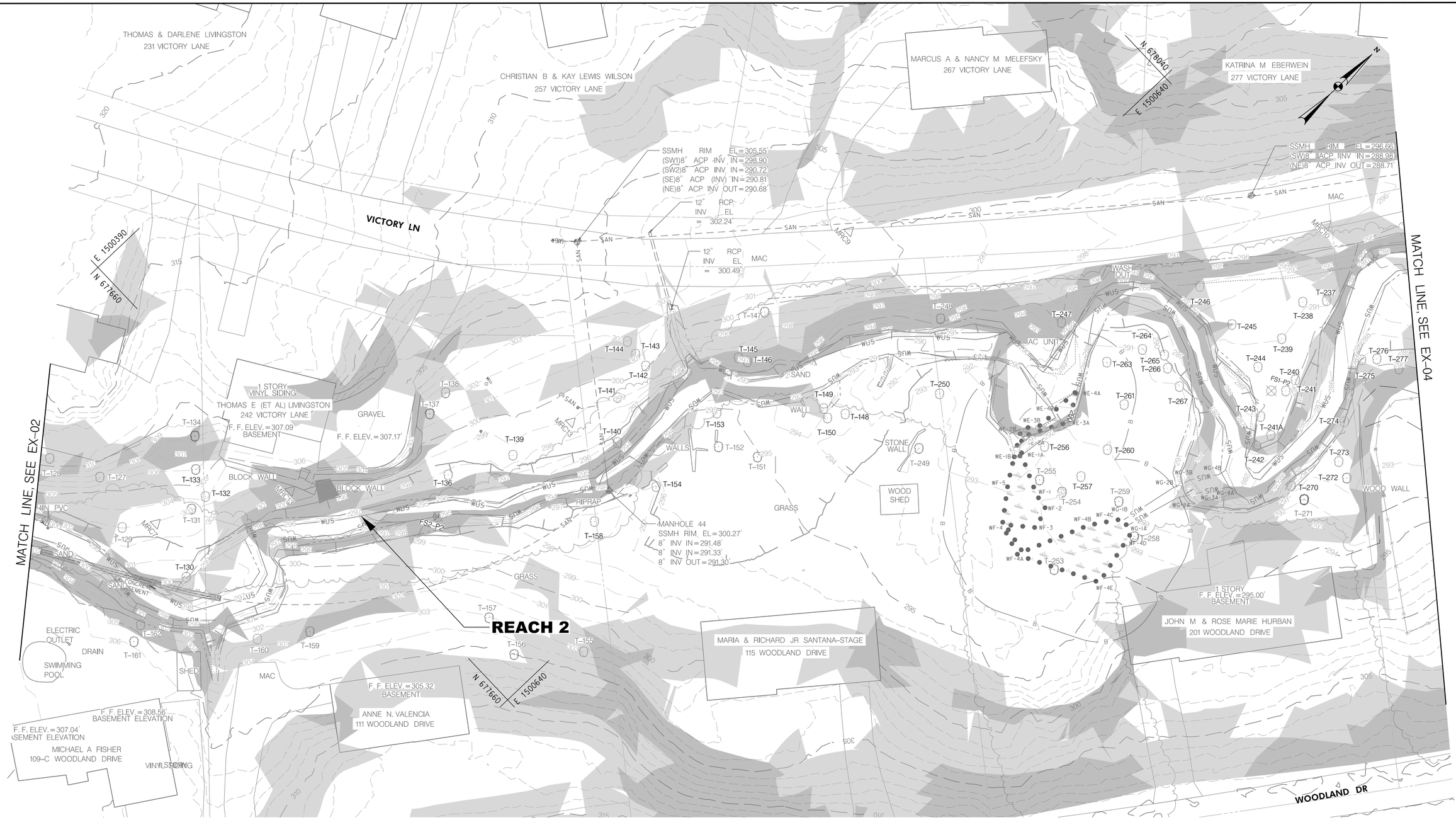
Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO
Drawing No. EX-02 of EX-04

Scale : 1" = 20'
Date : FEBRUARY 2025
Sheet No. 05 of 47

BY: nhoward -

PLOTTED: 2/24/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\05_pEX-0002-Woodland.dgn

ADC MAP: 21 GRID: H10
TAX MAP: 0049 GRID: 0003C
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1" = 100'



LEGEND

- EXISTING SANITARY SEWER
- WETLAND BOUNDARY
- 25 FT WETLAND BUFFER
- WATERS OF THE US
- EXISTING 100 YEAR FLOODPLAIN
- ROW/PROPERTY BOUNDARY
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- TRAVERSE POINT
- WETLAND PATTERN
- WOODS LINE
- WETLAND DATA POINT
- EXISTING TREE
- SANITARY SEWER CLEANOUT
- UTILITY POLE
- FOREST PLOT POINT
- 15% TO 25% SLOPES
- 25%+ SLOPES

20' 0 20' 40'
SCALE: 1" = 20'

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PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

EXISTING CONDITIONS

Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO
Drawing No. EX-03 of EX-04

Scale : 1" = 20'
Date : FEBRUARY 2025
Sheet No. 06 of 47

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1" = 20'

BY: nhoward -

PLOTTED: 2/24/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\06_pEX-0003-Woodland.dgn

MATCH LINE, SEE EX-03

KATRINA M ERBERWEIN
277 VICTORY LANE

WILLIAM CHARLES & LAUREN ELIZABETH FRANZ
294 WAKELY TERRACE

FRANCIS MICHAEL BOWEN
298 WAKELY TERRACE

VICTORY LANE

SSMH RIM EL=289.69
(SW)8" ACP INV IN=281.50
(NE)8" ACP INV OUT=281.37

INLET EL 15" RCP = 282.70

E 1500950 N 678470

SSMH RIM EL=282.63
(SW)8" ACP INV IN=271.71
(W)8" ACP INV IN=271.62
(E)8" ACP INV OUT=271.94

15" RCP INV EL = 280.84

WAKELY TERR

JONATHAN & TAHANNEY SCHMITT
301 WAKELY TERRACE

STREET SIGN

15" RCP INV EL = 279.14

EXISTING BRIDGES AND DEBRIS TO BE REMOVED AND DISPOSED OF

DEAD TREE

INV EL = 273.62

40" X60" CRUSHED PIPE INV EL = 275.35

CHERYL P BOWEN
303 WAKELY TERRACE

SSMH RIM EL=283.31
(SSW)8" ACP INV IN=275.27
(W)8" ACP INV IN=271.91
(N)8" ACP INV OUT=273.03
(SSE)8" ACP INV OUT=273.61

BURIED WOOD WALLS

TIRE BRIDGE

GRAVEL

SAND

HAMMOCK POSTS

STEPS

SITTING AREA W/FIRE PIT

MAC

MULCH

APPROX LOCATION OF BLDG

WOOD DECK

REACH 2

F. F. ELEV.=285.76
GARAGE ENT.

F. F. ELEV.=285.87
BASEMENT

1 STORY BRICK

F. F. ELEV.=293.08
BASEMENT ELEV'S

2 STORY BRICK

BENJAMIN & CAITLIN HUBER
203 WOODLAND DRIVE

RUSSELL S & AMY E DEAN
207 WOODLAND DRIVE

PARISSA S & SHAHEEN SHANE SNIDER
209 WOODLAND DRIVE

CHERYL P BOWEN
305 WAKELY TERRACE

E 1500950 N 677970

WOODLAND DR

N 678470 E 1501250

FRANK KOVACS
204 WOODLAND DRIVE

ERIC R & LISA R MARK
206 WOODLAND DRIVE

FRANCIS J & STEPHANIE CRUTCHLEY
208 WOODLAND DRIVE

CHERYL P BOWEN
1 DIXIE DRIVE

LEGEND

SAN EXISTING SANITARY SEWER	TRAVERSE POINT	15% TO 25% SLOPES
WETLAND BOUNDARY	WETLAND PATTERN	25%+ SLOPES
B 25 FT WETLAND BUFFER	WOODS LINE	
WUS WATERS OF THE US	WK-1 WETLAND DATA POINT	
EXISTING 100 YEAR FLOODPLAIN	EXISTING TREE	
ROW/PROPERTY BOUNDARY	SANITARY SEWER CLEANOUT	
320 EXISTING MAJOR CONTOUR	UTILITY POLE	
321 EXISTING MINOR CONTOUR	FOREST PLOT POINT	

20' 0 20' 40'
SCALE: 1" = 20'

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PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

EXISTING CONDITIONS

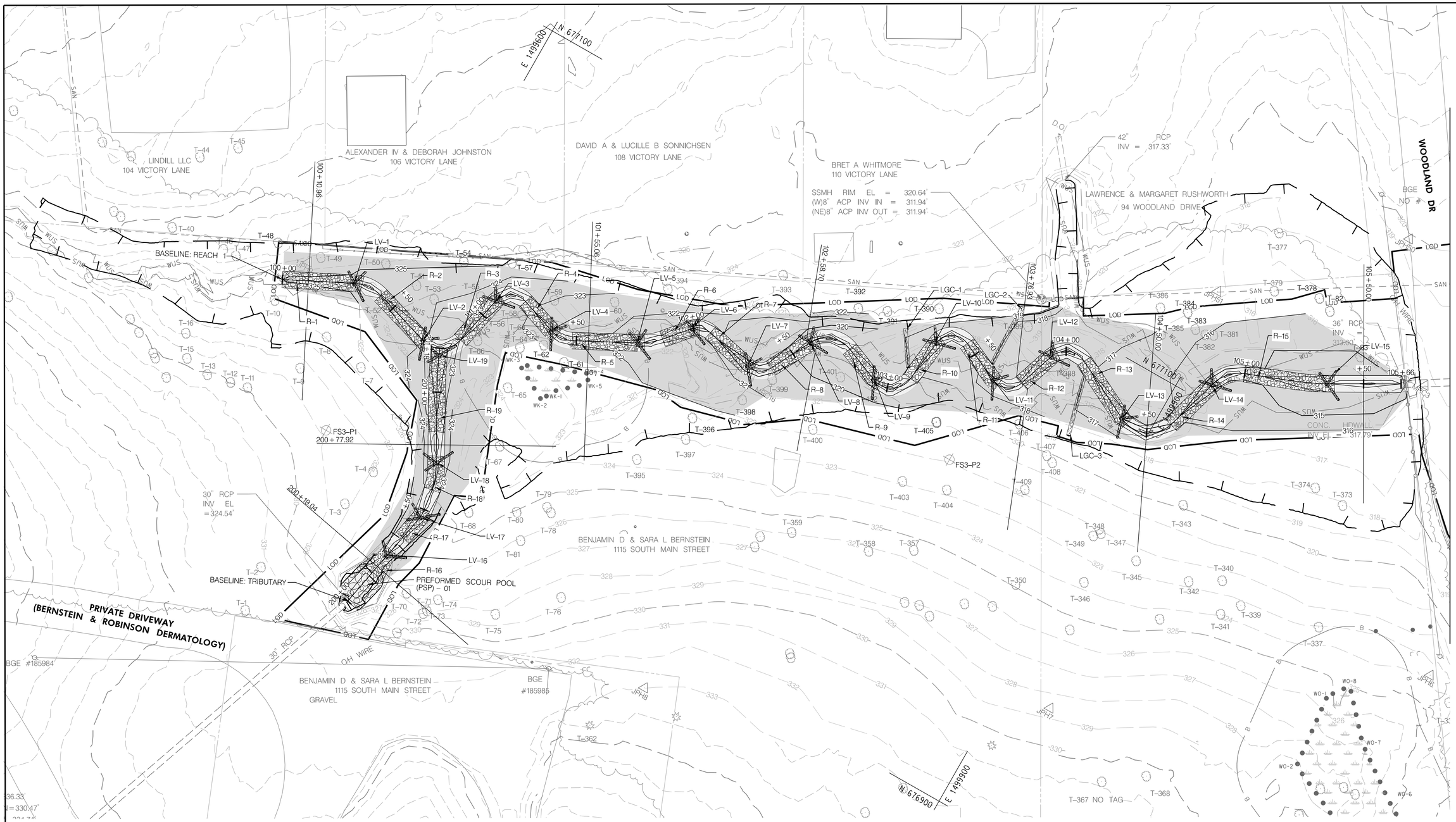
Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO
Drawing No. EX-04 of EX-04

Scale : 1" = 20'
Date : FEBRUARY 2025
Sheet No. 07 of 47

ADC MAP: 21 GRID: H10
TAX MAP: 0049 GRID: 0003C
HCG BILLING ID No.:
HCG DWG ID No.:

BY: nhoward –

PLOTTED: 2/24/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\07_pEX-0004-Woodland.dgn



MATCHLINE, SEE SR-02

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10

HCG BILLING ID No.:

HCG DWG ID No.:

BY: nhoward

LEGEND

- EXISTING SANITARY SEWER
- WETLAND BOUNDARY
- 25 FT WETLAND BUFFER
- WATERS OF THE US
- PRELIMINARY 100 YEAR FLOODPLAIN
- ROW/PROPERTY BOUNDARY
- ACCESS ROAD
- WETLAND
- WOODY DEBRIS
- RIP RAP
- PROPOSED MINOR CONTOURS
- PROPOSED MAJOR CONTOURS
- PROPOSED CHANNEL
- PROPOSED EXTRUDED CURB
- LIMIT OF DISTURBANCE
- RIFFLE GRADE CONTROL MIX
- SOIL STABILIZATION MATTING
- STONE TOE
- FLOODPLAIN LOG
- LOG VANE
- ROOT WAD

20' 0 20' 40'
SCALE: 1" = 20'

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PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

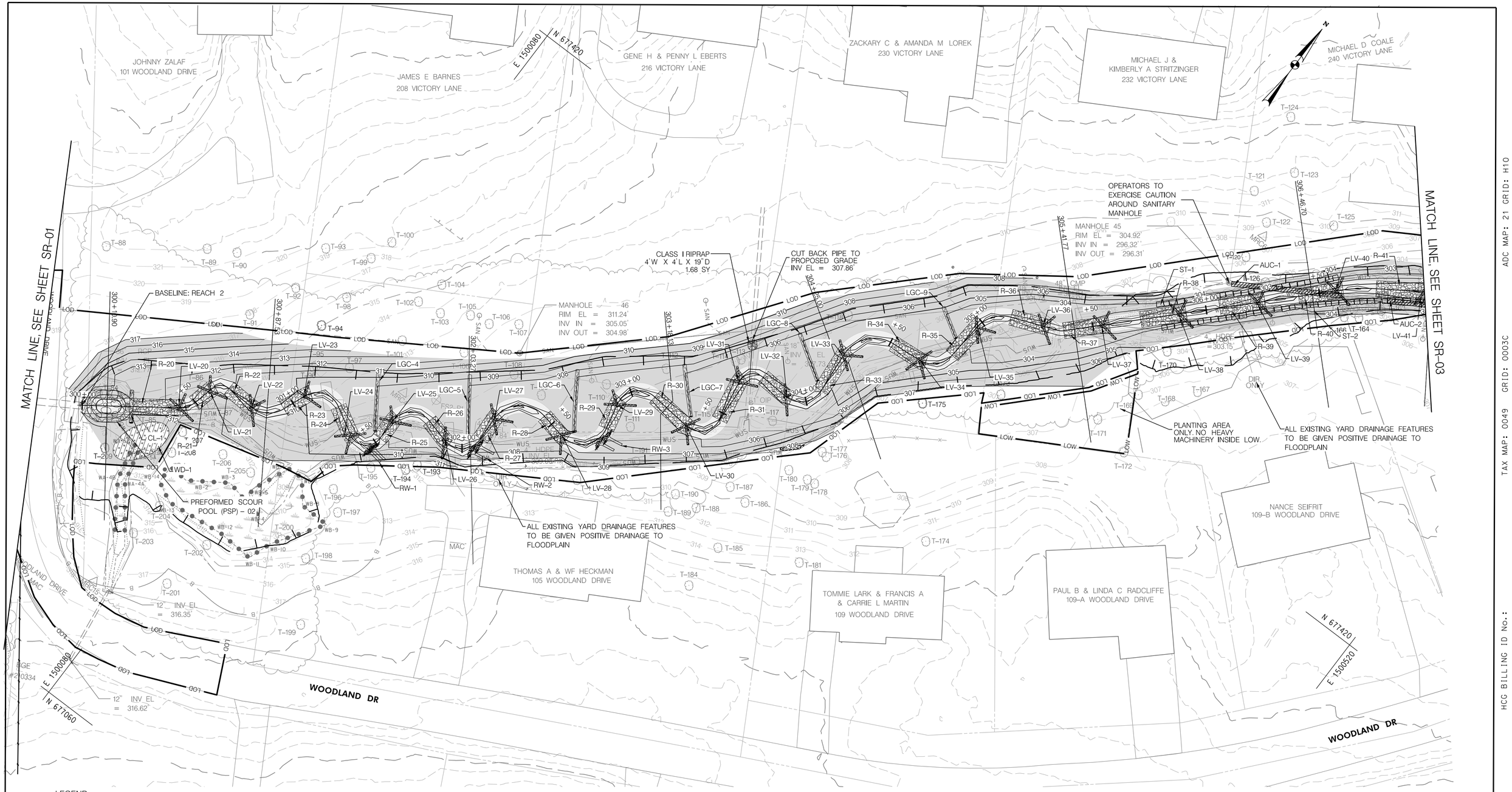
WOODLAND RUN STREAM RESTORATION

STREAM RESTORATION PLAN

Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO
Drawing No. SR-01 of SR-04

Scale : 1" = 20'
Date : FEBRUARY 2025
Sheet No. 08 of 47

PLOTTED: 2/24/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\08_pSR-0001-Woodland.dgn



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PROJECT CONTRACT #59882	Revisions
GP #GRA-002122-2022	
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HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

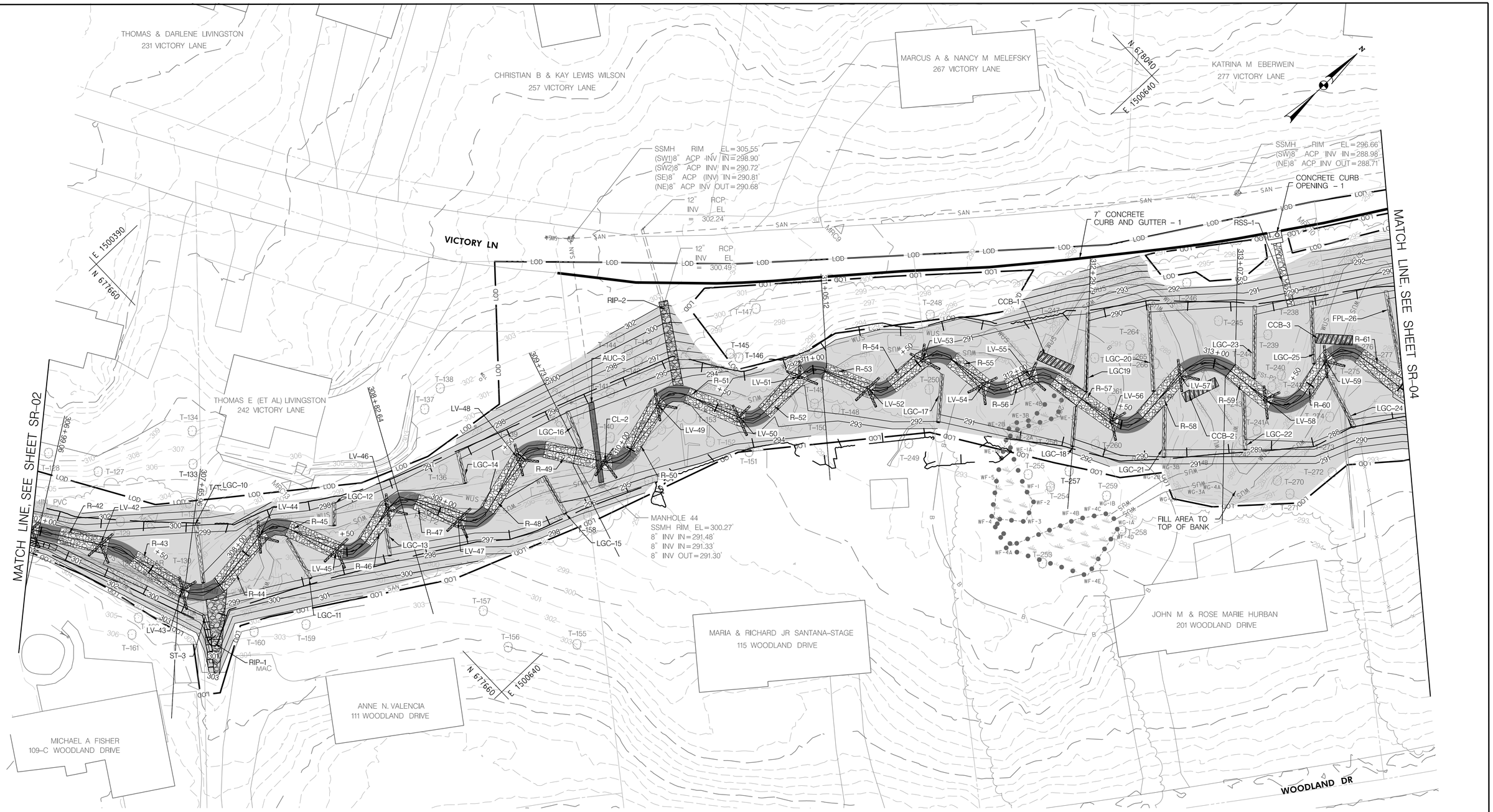
STREAM RESTORATION PLAN

Drawn By : NAH/MBR	Scale : 1" = 20'
Designed By : NAH	Date : FEBRUARY 2025
Reviewed By : RMO	
Drawing No. SR-02 of SR-04	Sheet No. 09 of 47

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1" = 20'

BY: nhoward

PLOTTED: 2/24/2025
FILE: \\ad.rkk.com\ifs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\09_pSR-0002-Woodland.dgn



LEGEND

- EXISTING SANITARY SEWER
- WETLAND BOUNDARY
- 25 FT WETLAND BUFFER
- WATERS OF THE US
- PRELIMINARY 100 YEAR FLOODPLAIN
- ROW/PROPERTY BOUNDARY
- ACCESS ROAD
- WETLAND
- WOODY DEBRIS
- RIP RAP
- PROPOSED MINOR CONTOURS
- PROPOSED MAJOR CONTOURS
- PROPOSED CHANNEL
- PROPOSED EXTRUDED CURB
- LIMIT OF DISTURBANCE
- RIFFLE GRADE CONTROL MIX
- SOIL STABILIZATION MATTING
- STONE TOE
- FLOODPLAIN LOG
- LOG VANE
- ROOT WAD
- ARMORED UTILITY CROSSING
- CLAY CHANNEL BARRIER

20' 0 20' 40'
SCALE: 1" = 20'

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SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

STREAM RESTORATION PLAN

Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO

Scale : 1" = 20'
Date : FEBRUARY 2025

Drawing No. SR-03 of SR-04

Sheet No. 10 of 47

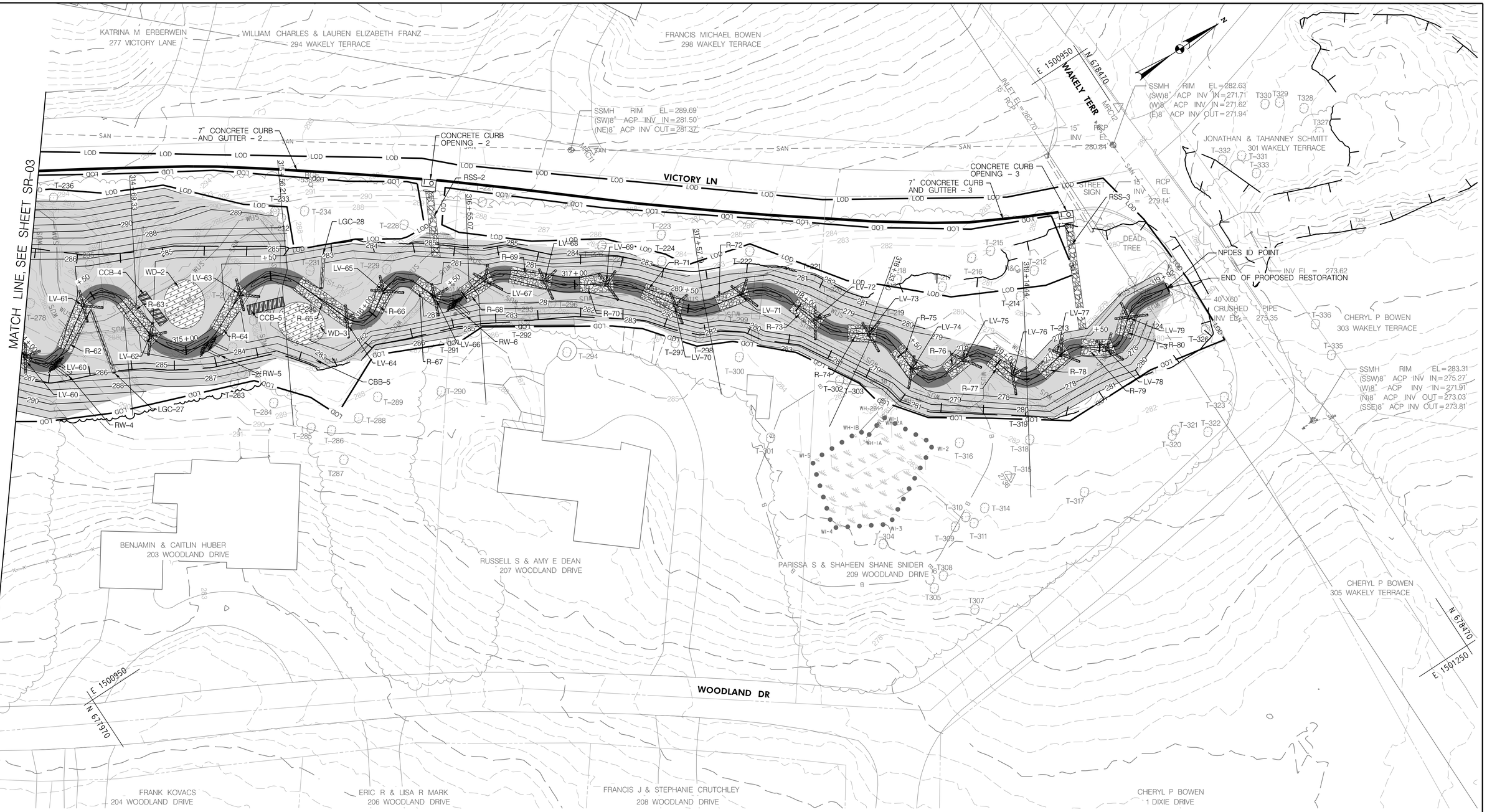
BY: sbazan -

PLOTTED: 2/28/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\10_pSR-0003-Woodland.dgn

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10

HCG BILLING ID No.:

HCG DWG ID No.:



LEGEND

- EXISTING SANITARY SEWER
- WETLAND BOUNDARY
- 25 FT WETLAND BUFFER
- WATERS OF THE US
- PRELIMINARY 100 YEAR FLOODPLAIN
- ROW/PROPERTY BOUNDARY
- ACCESS ROAD
- WETLAND
- WOODY DEBRIS
- RIP RAP
- PROPOSED MINOR CONTOURS
- PROPOSED MAJOR CONTOURS
- PROPOSED CHANNEL
- PROPOSED EXTRUDED CURB
- LIMIT OF DISTURBANCE
- RIFFLE GRADE CONTROL MIX
- SOIL STABILIZATION MATTING
- STONE TOE
- FLOODPLAIN LOG
- LOG VANE
- ROOT WAD
- CLAY CHANNEL BARRIER

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PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

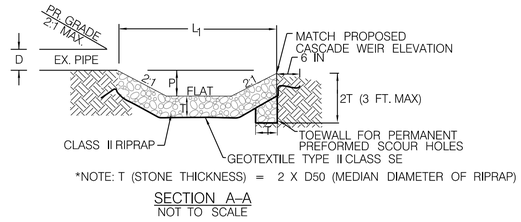
STREAM RESTORATION PLAN

Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO
Drawing No. SR-04 of SR-04

Scale : 1" = 20'
Date : FEBRUARY 2025
Sheet No. 11 of 47

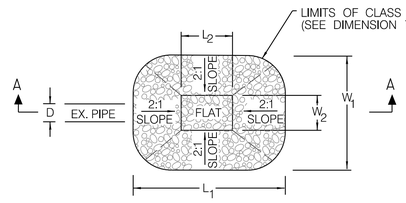
TAX MAP: 0049 GRID: 0003C
ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
BY: sbazan

PLOTTED: 2/28/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\11_pSR-0004-Woodland.dgn



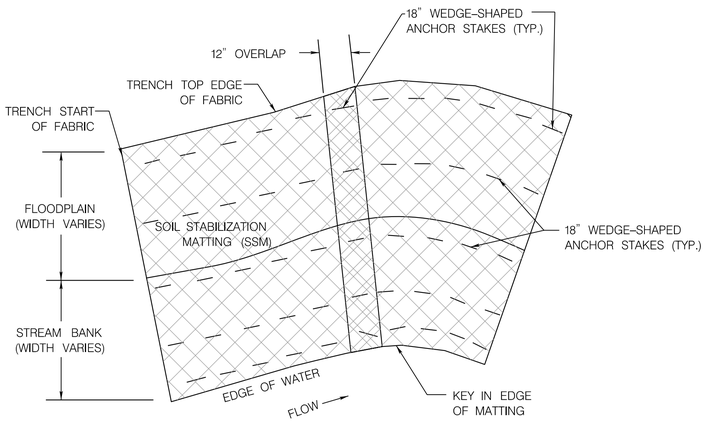
*NOTE: T (STONE THICKNESS) = 2 X D50 (MEDIAN DIAMETER OF RIPRAP)

SECTION A–A
NOT TO SCALE

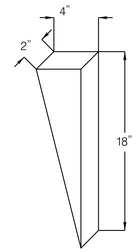


STR #	LOCATION	D (IN.)	L_1(FT.)	L_2(FT.)	W_1 (FT.)	W_2 (FT.)	P (FT.)	D50 (IN.)	T (IN.)	RIPRAP (SY)
PSP–1	TRIBUTARY	30	15.0	11.0	7.5	5.0	1.5	16	32	23
PSP–2	REACH 2	36	18.0	11.0	12.0	6.0	1.5	16	32	28

PREFORMED SCOUR POOL CONSTRUCTION DETAILS
NOT TO SCALE



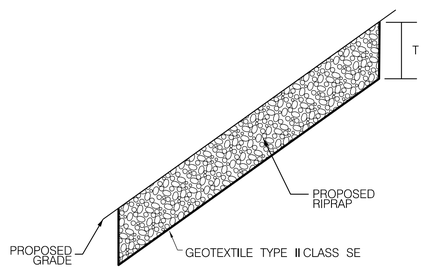
SOIL STABILIZATION MATTING PLAN



ANCHOR STAKE

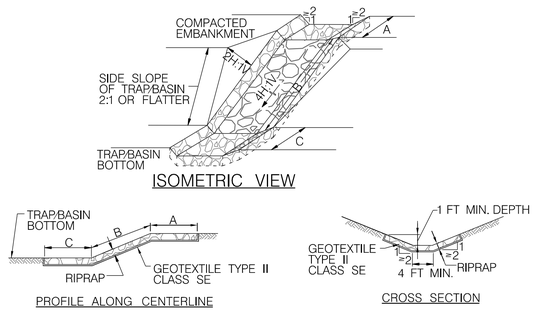
NOTES:

1. STAKES SHALL BE INSTALLED 24–INCHES APART ALONG THE UPSTREAM AND DOWNSTREAM EDGES OF MATTING WITH THE KEY–IN TRENCH AT THE TOP OF SLOPE, AND ON VERTICAL AND HORIZONTAL OVERLAPPING EDGES.
2. ON SLOPES 2:1 OR STEEPER, STAKES SHALL BE INSTALLED 3–FOOT ON CENTER.
3. ON SLOPES 3:1 OF GENTLER, STAKES SHALL BE INSTALLED 4–FOOT ON CENTER.



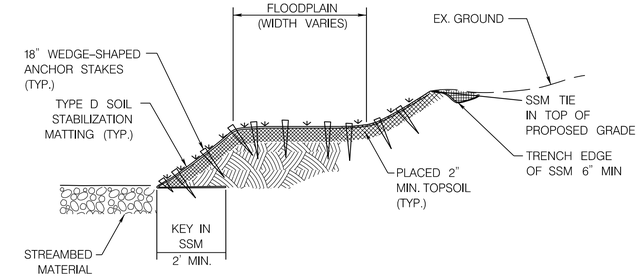
RIPRAP SLOPE STABILIZATION
NOT TO SCALE

RIRIPRAP SLOPE STABILIZATION (RSS) TABLE							
STR #	ST. STA.	ST. OFFSET	END STA.	END OFFSET	SIZE	T (IN.)	QUANTITY (SY)
RSS–1	313 + 66.94	52.7'	313 + 65.06	26.7	CLASS I	19	9
RSS–2	316 + 23.16	38.4'	316 + 27.47	14.0	CLASS I	19	10
RSS–3	319 + 40.85	52.8'	319 + 42.45	7.6	CLASS I	19	14



RIPRAP INFLOW STABILIZATION
NOT TO SCALE

RIPRAP INFLOW PROTECTION (RIP) TABLE												
STR #	ST. STA.	ST. OFFSET	END STA.	END OFFSET	A	B	C	Q10 (CFS)	V10 (CFS)	RIPRAP SIZE	RIPRAP DEPTH	QUANTITY (SY)
RIP–1	307 + 74.55	34.94'	307 + 73.21	3.5'	N/A	20'	12'	2.07	2.99	CLASS I	19"	19
RIP–2	310 + 31.14	39.40'	310 + 32.54	3.5'	N/A	33'	3'	1.39	2.59	CLASS I	19"	16



SOIL STABILIZATION MATTING SECTION

TYPE D SOIL STABILIZATION MATTING
NOT TO SCALE

SOIL STABILIZATION MATTING DETAIL			
REACH	SSM (SY)	2" TOPSOIL (SY)	4" TOPSOIL (SY)
1	1739	–	1739
2	7435	5319	2116

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I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. XXXXX, EXPIRATION DATE: XX/XX/XXXX.

PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

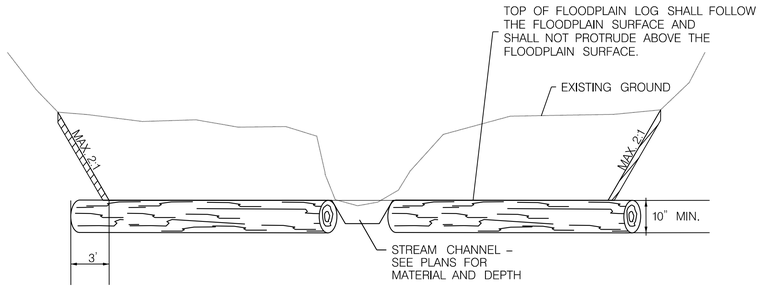
STREAM RESTORATION DETAILS

Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO
Drawing No. DE-01 OF DE-06

Scale : NOT TO SCALE
Date : FEBRUARY 2025
Sheet No. 12 of 47

TAX MAP:
HCG BILLING ID No.:
ADC MAP: 21 GRID: H10
TAX MAP: 0049 GRID: 0003C
HCG DWG ID No.:
SCALE 1" = 1'-0"
BY: sbazan –

PLOTTED: 2/28/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\12_pDE-0001-Woodland.dgn

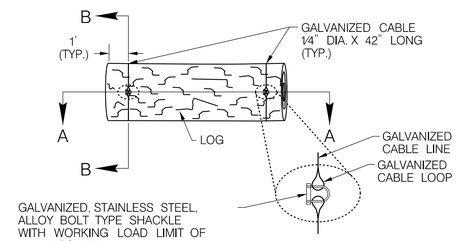


FLOODPLAIN LOG GRADE CONTROL PLACEMENT DETAIL

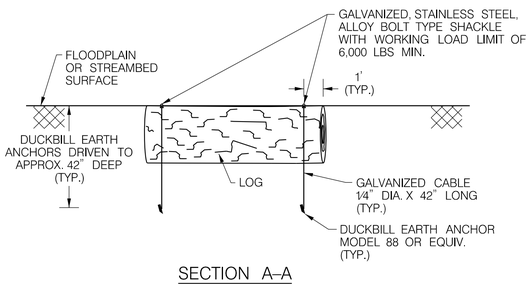
NOT TO SCALE

NOTE: LOG ANCHOR DETAIL, SEE THIS SHEET

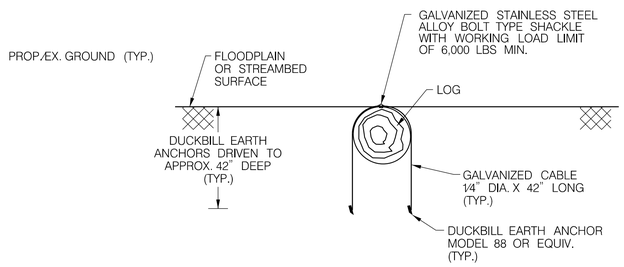
FLOODPLAIN LOG GRADE CONTROL TABLE							
		LEFT END OF LOG		RIGHT END OF LOG			
STR #	STATION	NORTHING	EASTING	NORTHING	EASTING	LOG ELEV.	LENGTH (FT)
LGC–1	103+14	677,065.0	1,499,789.9	677,051.4	1,499,799.1	319.0	16.0
LGC–2	103+57	677,069.9	1,499,828.7	677,069.9	1,499,828.1	318.0	27.0
LGC–3	104+14	677,084.4	1,499,864.4	677,059.5	1,499,871.4	317.0	26.0
LGC–4	301+54	677,258.3	1,500,110.2	677,237.1	1,500,124.6	309.0	26.0
LGC–5	302+04	677,281.8	1,500,142.7	677,258.7	1,500,159.1	308.0	28.0
LGC–6	302+61	677,289.1	1,500,194.1	677,312.0	1,500,178.7	307.0	28.0
LGC–7	303+28	677,342.0	1,500,214.4	677,325.6	1,500,230.5	306.0	23.0
LGC–8	304+11	677,383.3	1,500,246.4	677,371.4	1,500,265.2	305.0	22.0
LGC–9	304+87	677,430.5	1,500,289.4	677,422.8	1,500,302.2	304.0	15.0
LGC–10	307+76	677,614.8	1,500,499.3	677,599.9	1,500,519.5	298.0	25.0
LGC–11	308+24	677,638.6	1,500,530.2	677,634.3	1,500,549.5	297.0	20.0
LGC–12	308+40	677,663.8	1,500,532.7	677,656.7	1,500,540.0	297.0	10.0
LGC–13	308+69	677,672.0	1,500,556.2	677,665.2	1,500,565.6	296.0	12.0
LGC–14	309+15	677,716.7	1,500,552.9	677,709.6	1,500,565.3	296.0	14.0
LGC–15	309+49	677,731.7	1,500,604.0	677,736.1	1,500,585.9	295.0	19.0
LGC–16	309+76	677,765.1	1,500,572.7	677,755.9	1,500,588.3	294.0	17.0
LGC–17	311+67	677,888.2	1,500,670.9	677,878.5	1,500,684.6	291.0	21.0
LGC–18	312+30	677,919.9	1,500,719.8	677,907.1	1,500,731.2	290.0	17.0
LGC–19	312+30	677,951.3	1,500,694.3	677,927.4	1,500,718.1	290.0	34.0
LGC–20	312+70	677,947.7	1,500,745.2	677,932.3	1,500,761.2	289.0	22.0
LGC–21	312+72	677,972.4	1,500,709.3	677,948.8	1,500,737.6	289.0	37.0
LGC–22	313+18	677,975.9	1,500,764.3	677,959.4	1,500,782.6	288.0	25.0
LGC–23	313+18	678,004.4	1,500,741.0	677,982.9	1,500,763.4	288.0	31.0
LGC–24	313+58	678,023.4	1,500,755.7	678,005.8	1,500,776.2	287.0	27.0
LGC–25	313+57	678,006.2	1,500,784.0	677,999.7	1,500,807.6	287.0	25.0
LGC–26	313+99	678,049.5	1,500,774.6	678,028.7	1,500,806.5	286.0	38.0
LGC–27	314+44	678,060.2	1,500,811.1	678,053.7	1,500,839.3	285.0	29.0
LGC–28	315+72	678,115.6	1,500,845.8	678,146.3	1,500,857.4	282.0	15.0



PLAN VIEW



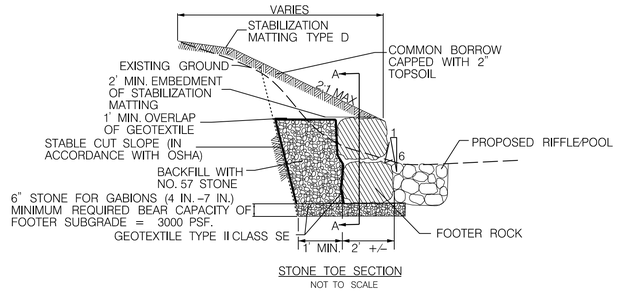
SECTION A–A



SECTION B–B

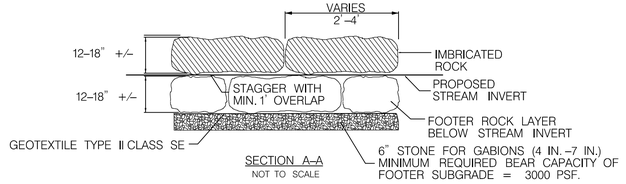
LOG ANCHOR DETAIL

NOT TO SCALE



STONE TOE SECTION

NOT TO SCALE



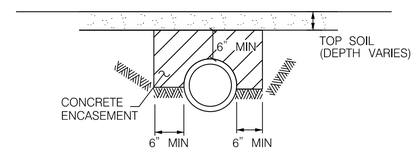
SECTION A–A

NOT TO SCALE

STONE TOE

NOT TO SCALE

STONE TOE TABLE						
STR #	ST. STATION	ST. OFFSET	END. STATION	END OFFSET	BANK	TONS
ST–1	305+77.7	3.5	306+57.4	3.5	L	33
ST–2	305+77.7	3.5	307+08.0	3.5	R	54
ST–3	307+74.3	9.6	307+73.7	35.0	R	11



ARMORED UTILITY CROSSING

NOT TO SCALE

NOTES

1. CONCRETE ENCASEMENT DEPTH TO MIDPOINT PIPE.
2. CONTRACTOR SHALL ONLY EXCAVATE TRENCH TO ELEVATION OF MID-POINT OF PIPE. LOWER HALF OF PIPE SHALL NOT BE EXPOSED AND SHALL REMAIN ON IN-SITE SOIL.

ARMORED UTILITY CROSSING				
STR #	ST. STATION	ST. OFFSET	END STATION	END OFFSET
AUC–1	306+12.65	9.69' L	306+59.50	2.47' R
AUC–2	306+80.06	4.90' R	306+99.55	5.80' R
AUC–3	309+76.12	23.4' L	309+87.18	8.77' R

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I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. XXXXX, EXPIRATION DATE: XX/XX/XXXX.

PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

STREAM RESTORATION DETAILS

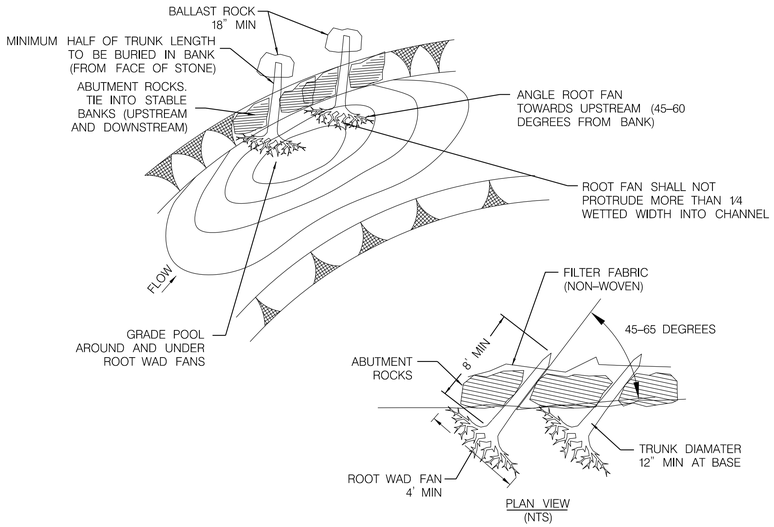
Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO
Drawing No. DE-02 OF DE-06

Scale : NOT TO SCALE
Date : FEBRUARY 2025
Sheet No. 13 of 47

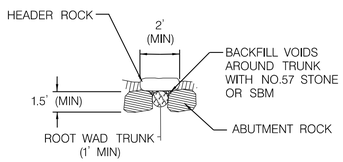
BY: sbazan –

PLOTTED: 2/28/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\13_pDE-0002-Woodland.dgn

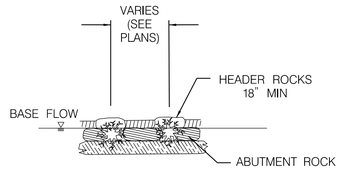
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HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1" = 1'-0"



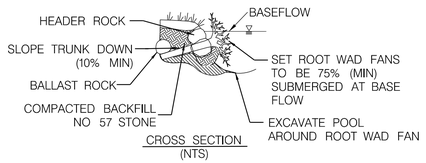
PLAN VIEW
(NTS)



BACK ELEVATION
(NTS)



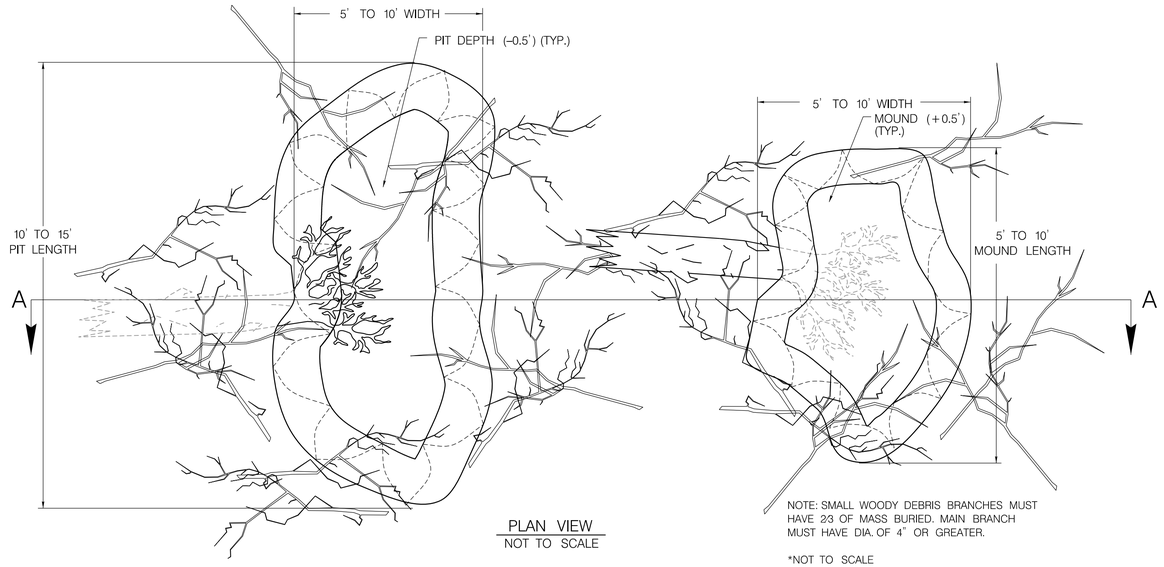
FRONT ELEVATION
(NTS)



CROSS SECTION
(NTS)

ROOT WAD DETAIL
NOT TO SCALE

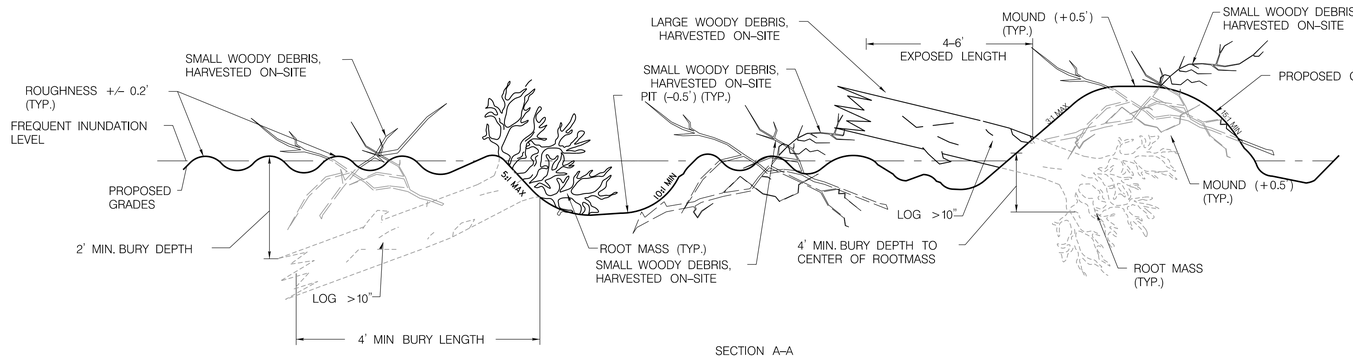
ROOT WAD (RW) SCHEDULE				
STR #	US STATION	DS STATION	BANK	EST. # OF ROOT BALLS (TO BE ADJUSTED IN THE FIELD W/ CONSTRUCTION MANAGER)
RW–1	301+44.43	301+51.61	R	2
RW–2	302+00.90	302+10.07	R	2
RW–3	302+70.85	302+80.03	R	2
RW–4	314+14.12	314+21.50	R	2
RW–5	315+04.38	315+14.63	R	2
RW–6	316+40.84	316+49.26	R	2



PLAN VIEW
NOT TO SCALE

NOTE: SMALL WOODY DEBRIS BRANCHES MUST HAVE 2/3 OF MASS BURIED. MAIN BRANCH MUST HAVE DIA. OF 4" OR GREATER.

*NOT TO SCALE



SECTION A–A

WOODY DEBRIS PLACEMENT DETAIL
NOT TO SCALE

WOODY DEBRIS PLACEMENT			
STR #	US STATION	DS STATION	SY
WD–1	300+14.40	300+37.78	32
WD–2	314+76.44	315+25.06	32
WD–3	315+25.12	315+69.04	32

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PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

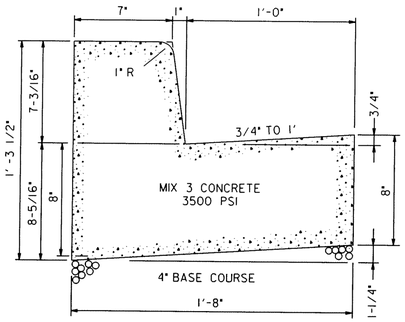
WOODLAND RUN STREAM RESTORATION

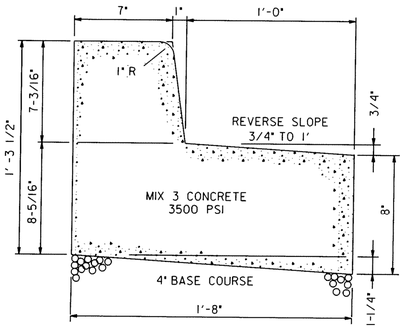
STREAM RESTORATION DETAILS

Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO
Scale : NOT TO SCALE
Date : FEBRUARY 2025
Drawing No. DE-03 OF DE-06
Sheet No. 14 of 47

ADC MAP: 21 GRID: H10
TAX MAP: 0049 GRID: 0003C
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE 1 inch

BY: nhoward –
PLOTTED: 2/24/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\14_pDE-0003-Woodland.dgn





AREA = 0.16± S.Y. 18.75 ± L.F./C.Y.

A BITUMINOUS SEAL SHALL BE PLACED AT ALL CURB JOINTS ALONG THE GUTTER PAN.

5-2-00
DIRECTOR OF PUBLIC WORKS DATE

4/12/00
DEP. DIRECTOR, PUBLIC WORKS DATE

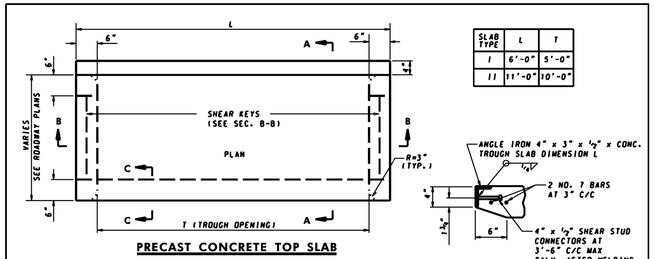
HARFORD COUNTY, MD
DEPARTMENT OF
PUBLIC WORKS

7" COMBINATION CURB AND GUTTER

ISSUED 5/2/00
REVISED 5/31/07
REVISED
PLATE S-1

USER\DETAILS\SPEC\ROADCODE\STANDARD DETAILS\SHOULDER\S-1.DGN

S-1.DGN 02/13/2009 10:30:53 AM

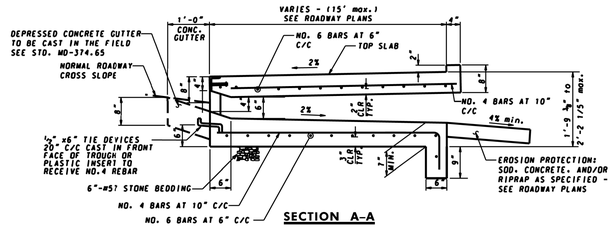


SLAB TYPE	L	T
I	6'-0"	5'-0"
II	11'-0"	10'-0"

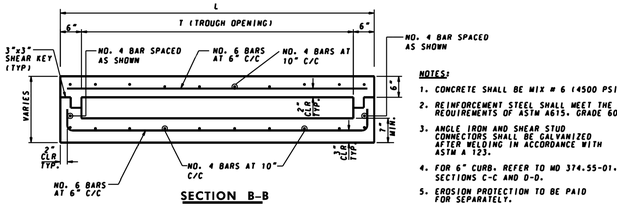
PRECAST CONCRETE TOP SLAB

NOTE: FOR 6" CURB. SEE NOTE 4 BELOW.

SECTION C-C



SECTION A-A



SECTION B-B

NOTES:

1. CONCRETE SHALL BE MIX # 6 (4500 PSI).
2. REINFORCEMENT STEEL SHALL MEET THE REQUIREMENTS OF ASTM A615, GRADE 60.
3. ANGLE IRON AND SHEAR STUD CONNECTORS SHALL BE GALVANIZED AFTER WELDING IN ACCORDANCE WITH ASTM A 123.
4. FOR 6" CURB, REFER TO MD 374.55-01, SECTIONS C-C AND D-D.
5. EROSION PROTECTION TO BE PAID FOR SEPARATELY.

SPECIFICATION 305	CATEGORY CODE ITEMS
APPROVED	Kirk G. McCall, DIRECTOR OFFICE OF HIGHWAY DEVELOPMENT

SHA State Highway Administration	APPROVAL • SHA REVISIONS	APPROVAL • FEDERAL HIGHWAY ADMINISTRATION
APPROVAL	12-19-01	7-15-02
REVISED	1-9-08	11-26-07
REVISED		
REVISED		

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

PRECAST OR CAST-IN-PLACE COG /COS OPENING FOR 8" CURB 5' OR 10' ONLY

STANDARD NO. MD 374.68

7" COMBINATION CURB AND GUTTER TABLE					
STR #	ST. NORTHING	ST. EASTING	END NORTHING	END EASTING	LENGTH
1	677,799.40	1,500,527.29	678,029.49	1,500,722.15	302
2	678,034.52	1,500,725.43	678,207.89	1,500,841.88	209
3	678,212.69	1,500,845.56	678,425.92	1,501,001.42	265

CONCRETE CURB OPENING TABLE					
STR #	ST. NORTHING	ST. EASTING	END NORTHING	END EASTING	TYPE
1	678,029.49	1,500,722.15	678,034.54	1,500,725.38	I
2	678,207.89	1,500,841.88	678,212.66	1,500,845.54	I
3	678,425.92	1,501,001.11	678,431.35	1,501,004.02	I

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I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. XXXXX. EXPIRATION DATE: XX/XX/XXXX.

PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

STREAM RESTORATION DETAILS

Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO

Scale : NOT TO SCALE
Date : FEBRUARY 2025

Drawing No. DE-04 OF DE-06

Sheet No. 15 of 47

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10

HCG BILLING ID No.:

HCG DWG ID No.:

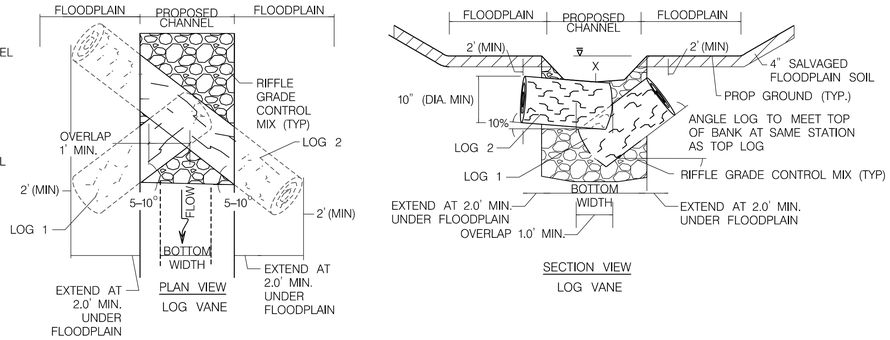
SCALE: 1"=10ft

BY: nhoward -

PLOTTED: 2/24/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\15_pDE-0004-Woodland.dgn

LOG VANE NOTES:

1. LOGS BURIED IN THE CHANNEL SHALL HAVE A MIN. DIAMETER OF 10". LOGS SHALL BE HARVESTED FROM TREES TO BE REMOVED WITHIN THE PERMITTED LIMIT OF DISTURBANCE.
2. BURIED CHANNEL LOGS SHALL BE PLACED IN 'V' PATTERN
3. 'V' PATTERN LOGS SHALL BE ANGLED DOWNSTREAM 5–10 DEGREES. TOP LOG SHALL BE ANGLED UPWARDS TOWARDS PROPOSED FLOODPLAIN AT 10%. BOTTOM LOG SHALL BE ANGLED UPWARDS TO MEET TOP OF BANK AT SAME STATION AS TOP LOG.
4. PLACE RGC MIX BELOW AND AROUND LOGS TO ACHIEVE 2' RIFFLE DEPTH AND EXTENTS SHOWN ON PLANS.

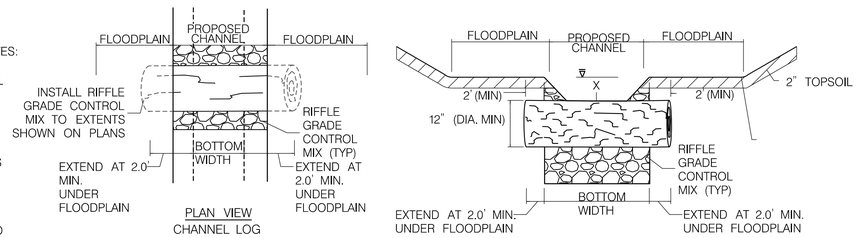


LOG VANE (LV) DETAIL

NOT TO SCALE

CHANNEL LOG CONSTRUCTION NOTES:

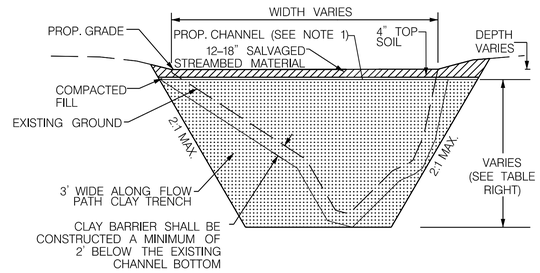
1. LOGS BURIED IN THE CHANNEL SHALL HAVE A MIN. DIAMETER OF 12". LOGS SHALL BE HARVESTED FROM TREES TO BE REMOVED WITHIN THE PERMITTED LIMIT OF DISTURBANCE. FURNISHED LOGS SHALL BE BROUGHT ONSITE IF NEEDED.
2. BURIED CHANNEL LOGS SHALL BE PLACED PERPENDICULAR TO THE CHANNEL PER PLAN.
3. PLACE RGC MIX BELOW AND AROUND LOGS TO ACHIEVE 2' RIFFLE DEPTH AND EXTENTS SHOWN ON PLANS.



CHANNEL LOG (CL) DETAIL

NOT TO SCALE

CHANNEL LOG (CL) AND LOG VANE (LV) TABLE			
STR #	STATION	ELEV. (X)	TOTAL LENGTH (FT)
LV–1	100+30.28	323.91	18
LV–2	100+68.42	322.98	18
LV–3	101+07.82	322.19	18
LV–4	101+38.37	321.60	18
LV–5	101+75.64	320.62	18
LV–6	101+98.94	320.16	18
LV–7	101+28.58	319.41	18
LV–8	101+58.70	318.70	18
LV–9	102+93.13	318.12	18
LV–10	103+29.23	317.46	18
LV–11	103+63.06	316.79	18
LV–12	103+93.13	316.19	18
LV–13	104+37.55	315.16	18
LV–14	104+85.67	314.29	18
LV–15	105+35.80	313.00	18
LV–16	200+24.98	324.34	18
LV–17	200+46.73	323.49	18
LV–18	200+70.70	322.70	18
LV–19	201+14.62	321.43	18
CL–1	300+22.30	311.51	11
LV–20	300+40.30	310.86	18
LV–21	300+59.51	310.28	18
LV–22	300+79.95	309.58	18
LV–23	301+06.11	308.94	18
LV–24	301+37.05	308.29	18
LV–25	301+61.82	307.76	18
LV–26	301+91.05	307.19	18
LV–27	302+19.86	306.63	18
LV–28	302+56.40	306.05	18
LV–29	302+91.52	305.48	18
LV–30	303+29.69	304.96	18
LV–31	303+65.28	304.44	18
LV–32	303+90.43	304.08	18
LV–33	304+26.72	303.56	18
LV–34	304+64.82	303.19	18
LV–35	304+96.83	302.73	18
LV–36	305+27.82	302.48	18
LV–37	305+53.00	301.97	18
LV–38	305+88.00	301.21	18
LV–39	306+23.00	300.45	18
LV–40	306+58.00	299.69	18
LV–41	306+96.00	298.81	18
LV–42	307+26.37	298.05	18
LV–43	307+66.74	297.16	18
LV–44	308+09.98	296.06	18
LV–45	308+45.41	295.30	18
LV–46	308+75.88	294.78	18
LV–47	309+09.07	294.26	18
LV–48	309+48.21	293.46	18
CL–2	309+87.96	292.94	11
LV–49	310+22.09	292.10	18
LV–50	310+60.18	291.49	18
LV–51	310+93.26	290.94	18
LV–52	311+24.78	290.43	18
LV–53	311+52.30	289.99	18
LV–54	311+82.98	289.56	18
LV–55	312+04.93	289.28	18
LV–56	312+45.54	288.68	18
LV–57	312+83.90	287.73	18
LV–58	313+26.66	286.79	18
LV–59	313+61.92	285.91	18
LV–60	314+03.99	284.89	18
LV–61	314+44.13	284.00	18
LV–62	314+83.16	282.89	18
LV–63	315+35.29	281.81	18
LV–64	315+87.61	280.47	18
LV–65	316+10.75	280.20	18
LV–66	316+36.34	279.88	18
LV–67	316+60.99	279.53	18
LV–68	316+87.11	279.14	18
LV–69	317+13.54	278.72	18
LV–70	317+44.23	278.21	18
LV–71	317+73.65	277.92	18
LV–72	318+08.98	277.60	18
LV–73	318+32.83	277.29	18
LV–74	318+57.61	276.90	18
LV–75	318+83.66	276.58	18
LV–76	319+08.03	276.23	18
LV–77	319+32.98	275.94	18
LV–78	319+53.03	275.60	18
LV–79	319+70.44	275.35	18



CLAY CHANNEL BARRIERS

NOT TO SCALE

NOTE:

1. CONSTRUCTION OF CLAY CHANNEL BARRIER NOT WITHIN THE LIMITS OF THE PROPOSED CHANNEL SHALL MATCH PROPOSED GRADE AS SHOWN ON THE PLANS USING CLAY TRENCH, COMPACTED FILL, AND 4" OF TOP SOIL AS SHOWN ON THIS DETAIL.
2. STATION/OFFSET MEASURED FROM CENTER OF STRUCTURE.

CLAY CHANNEL BARRIER (CCB) TABLE

LEFT END OF CLAY CHANNEL BARRIER							
STR #	STATION	OFFSET	NORTHING	EASTING	TOP ELEV.	BOTTOM ELEV.	CY
CCB–1	312+08.37	6.5	677,917.68	1,500,699.05	290.0	286.0	7
CCB–2	312+78.51	5.7	677,956.37	1,500,746.61	288.0	285.0	5
CCB–3	313+64.14	8.5	678,012.37	1,500,770.05	287.0	284.0	5
CCB–4	314+66.94	6.1	678,079.74	1,500,817.48	284.0	281.0	5
CCB–5	315+31.83	4.8	678,116.25	1,500,845.95	283.0	280.0	5

RIGHT END OF CLAY CHANNEL BARRIER						
STR #	STATION	OFFSET	NORTHING	EASTING	TOP ELEV.	BOTTOM ELEV.
CCB–1	312+20.00	5.8	677,927.86	1,500,705.34	290.0	286.0
CCB–2	313+02.13	5.7	677,971.34	1,500,751.31	288.0	285.0
CCB–3	313+74.03	2.8	678,023.09	1,500,781.48	287.0	284.0
CCB–4	314+82.61	5.5	678,080.74	1,500,833.14	284.0	281.0
CCB–5	315+58.51	8.3	678,131.04	1,500,851.20	283.0	280.0

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PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN
STREAM RESTORATION

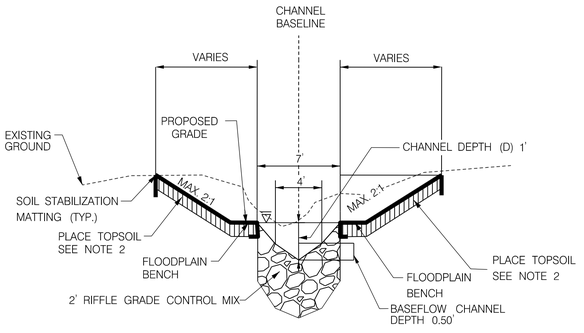
STREAM RESTORATION DETAILS

Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO
Scale : NOT TO SCALE
Date : FEBRUARY 2025
Drawing No. DE-05 of DE-06
Sheet No. 16 of 47

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1 inch

BY: nhoward –

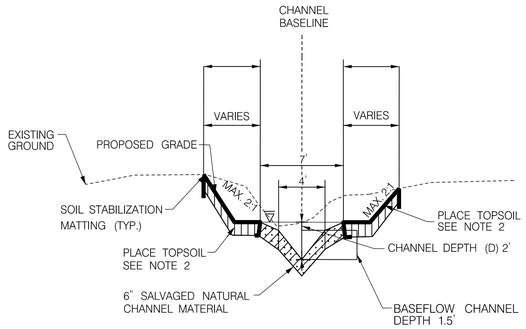
PLOTTED: 2/25/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\16_pDE-0005-Woodland.dgn



TYPICAL SECTION – RIFFLE

NOT TO SCALE

1. THE RIFFLE GRADE CONTROL STABILITY MIX SHALL BE PLACED SO IT SHINGLES IN A DOWNSTREAM DIRECTION, SMALL AND LARGE STONES MUST BE MIXED TO MINIMIZE VOID SPACE AND PROMOTE INTERLOCKING. NATURAL CHANNEL BED MATERIAL SHALL BE WASHIED INTO THE MIX TO ENSURE ALL INTERSTITIAL VOIDS ARE FILLED AND SUBSURFACE FLOW IS ACHIEVED. DUMPING OF STONE WILL NOT BE PERMITTED.



TYPICAL SECTION – POOL

NOT TO SCALE

NOTE 2: PLACE 2" OF TOPSOIL ON SLOPES GREATER THAN 4:1. PLACE 4" OF TOPSOIL ON SLOPES LESS THAN 4:1.

RIFFLE GRADE CONTROL SCHEDULE

STR #	START STA.	END STA.	CREST ELEV.	TAIL ELEV.	RGC (SY)	RGC MIX	SNCM* (SY)
R-1	100+00.00	100+29.64	324.47	323.67	26.0	1	5.2
R-2	100+43.07	100+68.42	323.91	322.98	22.5	1	4.5
R-3	100+86.00	101+07.82	322.98	322.19	19.3	1	3.9
R-4	101+22.02	101+38.37	322.19	321.60	15.1	1	3.0
R-5	101+48.30	101+75.64	321.60	320.62	23.5	1	4.7
R-6	101+86.28	101+98.94	320.62	320.16	12.6	1	2.5
R-7	102+07.56	101+28.58	320.16	319.41	18.6	1	3.7
R-8	102+39.04	101+58.70	319.41	318.70	18.1	1	3.6
R-9	102+77.02	102+93.13	318.70	318.12	14.8	1	3.0
R-10	103+10.98	103+29.23	318.12	317.46	16.4	1	3.3
R-11	103+44.40	103+63.06	317.46	316.79	16.8	1	3.4
R-12	103+76.51	103+93.13	316.79	316.19	15.3	1	3.1
R-13	104+08.89	104+37.55	316.19	315.16	24.6	1	4.9
R-14	104+61.59	104+85.67	315.16	314.29	21.0	1	4.2
R-15	104+99.82	105+35.80	314.30	313.00	29.5	1	5.9
R-16	200+14.99	200+24.98	324.54	324.34	13.8	1	2.8
R-17	200+34.99	200+46.73	323.84	323.49	11.1	1	2.2
R-18	200+59.29	200+70.70	322.99	322.70	11.3	1	2.3
R-19	200+84.00	201+18.40	322.20	321.02	27.3	1	5.5
R-20	300+22.30	300+40.30	311.51	310.86	18.0	1	3.6
R-21	300+50.24	300+59.51	310.61	310.28	9.0	1	1.8
R-22	300+67.49	300+79.95	310.03	309.58	12.3	1	2.5
R-23	300+95.34	301+06.11	309.33	308.94	10.6	1	2.1
R-24	301+23.53	301+37.05	308.69	308.29	12.8	1	2.6
R-25	301+52.63	301+61.82	308.04	307.76	9.5	1	1.9
R-26	301+80.51	301+91.05	307.51	307.19	10.5	1	2.1
R-27	302+09.55	302+19.86	306.94	306.63	10.4	1	2.1
R-28	302+45.29	302+56.40	306.38	306.05	11.0	1	2.2
R-29	302+80.03	302+91.52	305.80	305.48	11.3	1	2.3
R-30	303+11.11	303+29.69	305.48	304.96	16.8	1	3.4
R-31	303+46.81	303+65.28	304.96	304.44	16.8	1	3.4
R-32	303+77.61	303+90.43	304.44	304.08	12.3	1	2.5
R-33	304+08.19	304+26.72	304.08	303.56	16.7	1	3.3
R-34	304+51.33	304+64.82	303.56	303.19	12.8	1	2.6
R-35	304+80.50	304+96.83	303.19	302.73	15.0	1	3.0
R-36	305+13.23	305+27.82	302.73	302.48	13.6	1	2.7
R-37	305+36.00	305+53.00	302.48	301.97	15.7	2	3.1
R-38	305+71.00	305+88.00	301.72	301.21	15.7	2	3.1
R-39	306+06.00	306+23.00	300.96	300.45	15.5	2	3.1
R-40	306+41.00	306+58.00	300.20	299.69	15.3	2	3.1
R-41	306+74.91	306+96.00	299.44	298.81	18.8	2	3.8
R-42	307+07.87	307+26.37	298.56	298.05	16.6	2	3.8
R-43	307+42.37	307+66.74	297.80	297.16	21.6	2	4.3
R-44	307+82.74	308+09.98	296.91	296.06	23.5	1	4.7
R-45	308+23.02	308+45.41	296.06	295.30	19.8	1	4.0
R-46	308+59.14	308+75.88	295.30	294.78	15.4	1	3.1
R-47	308+89.39	309+09.07	294.78	294.26	17.7	1	3.5
R-48	309+23.18	309+48.21	294.26	293.46	21.8	1	4.4
R-49	309+60.39	309+87.96	293.46	292.94	22.7	1	4.5
R-50	309+99.24	310+22.09	292.94	292.10	20.1	1	4.0
R-51	310+36.40	310+60.18	292.10	291.49	20.8	1	4.2
R-52	310+72.13	310+93.26	291.49	290.94	18.8	1	3.8
R-53	311+05.06	311+24.78	290.94	290.43	17.9	1	3.6
R-54	311+35.63	311+52.30	290.43	289.99	15.5	1	3.1
R-55	311+66.09	311+82.98	289.99	289.56	15.5	1	3.1
R-56	314+94.17	312+04.93	289.56	289.28	10.7	1	2.1
R-57	312+15.48	312+45.54	289.28	288.68	25.7	1	5.1
R-58	312+60.13	312+83.90	288.19	287.73	20.8	1	4.2
R-59	313+07.70	313+26.66	287.23	286.79	17.1	1	3.4
R-60	313+45.87	313+61.92	286.29	285.91	15.1	1	3.0
R-61	313+78.22	314+03.99	285.66	284.89	22.4	1	4.5
R-62	314+23.69	314+44.13	284.64	284.00	18.2	1	3.6
R-63	314+64.08	314+83.16	283.50	282.89	17.2	1	3.4
R-64	315+15.88	315+35.29	282.39	281.81	16.6	1	3.3
R-65	315+62.33	315+87.61	281.31	280.47	22.0	1	4.4
R-66	316+01.82	316+10.75	280.47	280.20	9.3	1	1.9
R-67	316+26.58	316+36.34	280.20	279.88	9.9	1	2.0
R-68	316+49.30	316+60.99	279.88	279.53	11.4	1	2.3
R-69	316+72.16	316+87.11	279.53	279.14	14.0	1	2.8
R-70	317+02.09	317+13.54	279.14	278.72	11.2	1	2.2
R-71	317+29.54	317+44.23	278.72	278.21	14.0	1	2.8
R-72	317+62.66	317+73.65	278.21	277.92	11.0	1	2.2
R-73	317+97.65	318+08.98	277.92	277.60	11.1	1	2.2
R-74	318+24.06	318+32.83	277.60	277.29	9.5	1	1.9
R-75	318+46.70	318+57.61	277.29	276.90	10.9	1	2.2
R-76	318+74.77	318+83.66	276.90	276.58	9.2	1	1.8
R-77	318+96.55	319+08.03	276.58	276.23	11.3	1	2.3
R-78	319+21.07	319+32.98	276.23	275.94	11.6	1	2.3
R-79	319+42.17	319+53.03	275.94	275.60	10.8	1	2.2
R-80	319+62.11	319+70.44	275.60	275.35	8.8	1	1.8

*SALVAGED NATURAL CHANNEL MATERIAL

RGC MIX 1		
% MIX	SHA CLASS 3	0%
	SHA CLASS 2	10%
	SHA CLASS 1	40%
	SHA CLASS 0	50%
	57 STONE	0%

RGC MIX 2		
% MIX	SHA CLASS 3	10%
	SHA CLASS 2	30%
	SHA CLASS 1	50%
	SHA CLASS 0	10%
	57 STONE	0%

POOL MATERIAL TABLE

START STA.	END STA.	SNCM* (SY)
100+30.28	100+42.56	7.1
100+68.42	100+86.00	8.6
101+07.82	101+22.02	8.7
101+38.37	101+48.30	5.4
101+75.64	101+86.28	6.0
101+98.94	102+07.56	3.9
101+28.58	102+39.04	5.9
101+58.70	102+77.02	11.5
102+93.13	103+10.98	11.6
103+29.23	103+44.40	9.6
103+63.06	103+76.51	8.2
103+93.13	104+08.89	9.9
104+37.55	104+61.59	16.0
104+85.67	104+99.82	9.2
105+35.80	105+66.00	21.7
200+24.98	200+34.99	5.5
200+46.73	200+59.29	7.4
200+70.70	200+84.00	7.9
300+40.30	300+50.24	3.1
300+59.51	300+67.49	5.1
300+79.95	300+95.34	9.4
301+06.11	301+23.53	11.3
301+37.05	301+52.63	9.8
301+61.82	301+80.51	12.2
301+91.05	302+09.55	12.1
302+19.86	302+45.29	17.4
302+56.40	302+80.03	16.0
302+91.52	303+11.11	12.9
303+29.69	303+46.81	11.0
303+65.28	303+77.61	7.1
303+90.43	304+08.19	11.6
304+26.72	304+51.33	16.8
304+64.82	304+80.50	9.9
304+96.83	305+13.23	10.4
305+27.82	305+36.00	5.0
305+53.00	305+71.00	10.8
305+88.00	306+06.00	11.5
306+23.00	306+41.00	11.6
306+58.00	306+74.91	11.3
306+96.00	307+07.87	6.9
307+26.37	307+42.37	9.4
307+66.74	307+82.74	10.1
308+09.98	308+23.02	8.4
308+45.41	308+59.14	8.3
308+75.88	308+89.39	8.2
309+09.07	309+23.18	8.6
309+48.21	309+60.39	7.4
309+87.96	309+99.24	7.2
310+22.09	310+36.40	8.8
310+60.18	310+72.13	7.0
310+93.26	311+05.06	6.6
311+24.78	311+35.63	5.9
311+52.30	311+66.09	8.4
311+82.98	314+94.17	6.3
312+04.93	312+15.48	5.9
312+45.54	312+60.13	9.1
312+83.90	313+07.70	16.2
313+26.66	313+45.87	12.6
313+61.92	313+78.22	10.1
314+03.99	314+23.69	13.0
314+44.13	314+64.08	13.2
314+83.16	315+15.88	23.1
315+34.29	315+62.33	19.5
315+87.61	316+01.82	8.7
316+10.75	316+26.58	10.0
316+36.34	316+49.30	7.7
316+60.99	316+72.16	6.4
316+87.11	317+02.09	9.3
317+13.54	317+29.54	10.0
317+44.23	317+62.66	11.9
317+73.65	317+97.65	16.2
318+08.98	318+24.06	9.4
318+32.83	318+46.70	8.2
318+57.61	318+74.77	11.0
318+83.66	318+96.55	7.7
319+08.03	319+21.07	7.8
319+32.98	319+42.17	4.8
319+53.03	319+62.11	4.7
319+70.44	319+92.00	14.5

*SALVAGED NATURAL CHANNEL MATERIAL

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PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

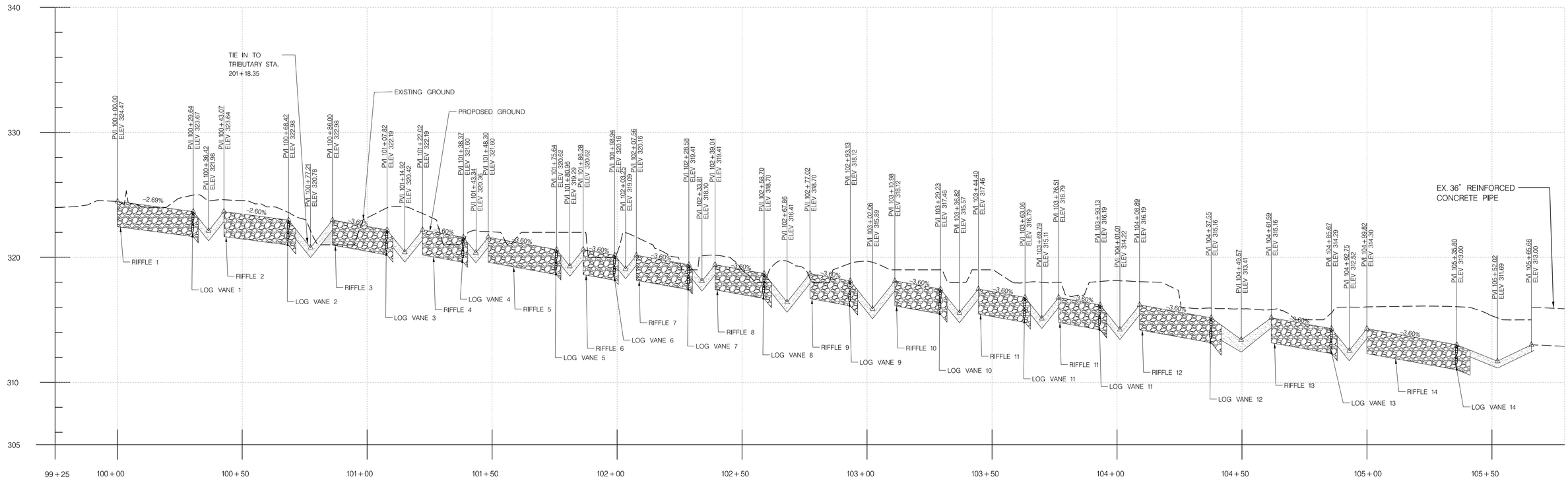
WOODLAND RUN STREAM RESTORATION

TYPICAL SECTIONS

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Designed By : NAH
Reviewed By : RMO
Drawing No. DE-06 of DE-06

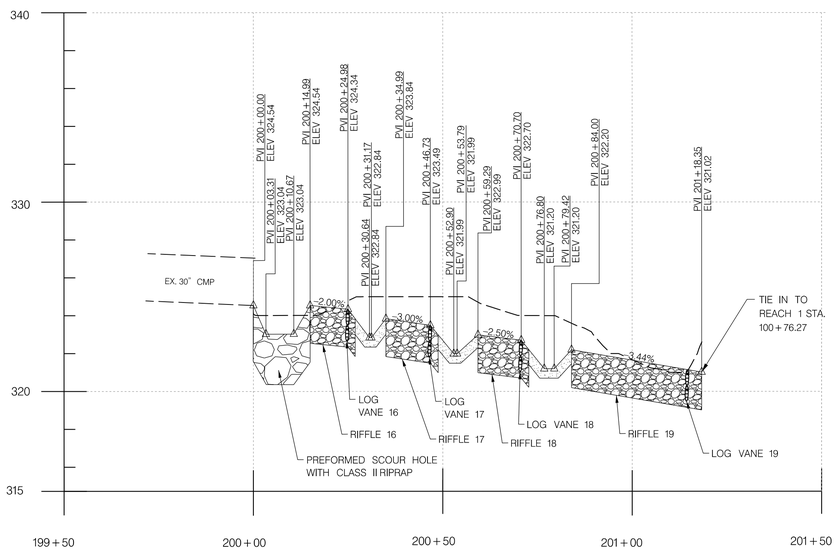
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Date : FEBRUARY 2025
Sheet No. 17 of 47

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1:1000
BY: nhoward –
PLOTTED: 2/25/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\17_pDE-0006-Woodland.dgn



REACH 1 PROFILE

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'



TRIBUTARY PROFILE

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

LEGEND

- RIFFLE GRADE CONTROL MIX
- CLASS II RIPRAP
- SALVAGED NATURAL CHANNEL MATERIAL
- COMMON BORROW
- BURIED LOG

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PROJECT CONTRACT #59882

GP #GRA-002122-2022

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Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

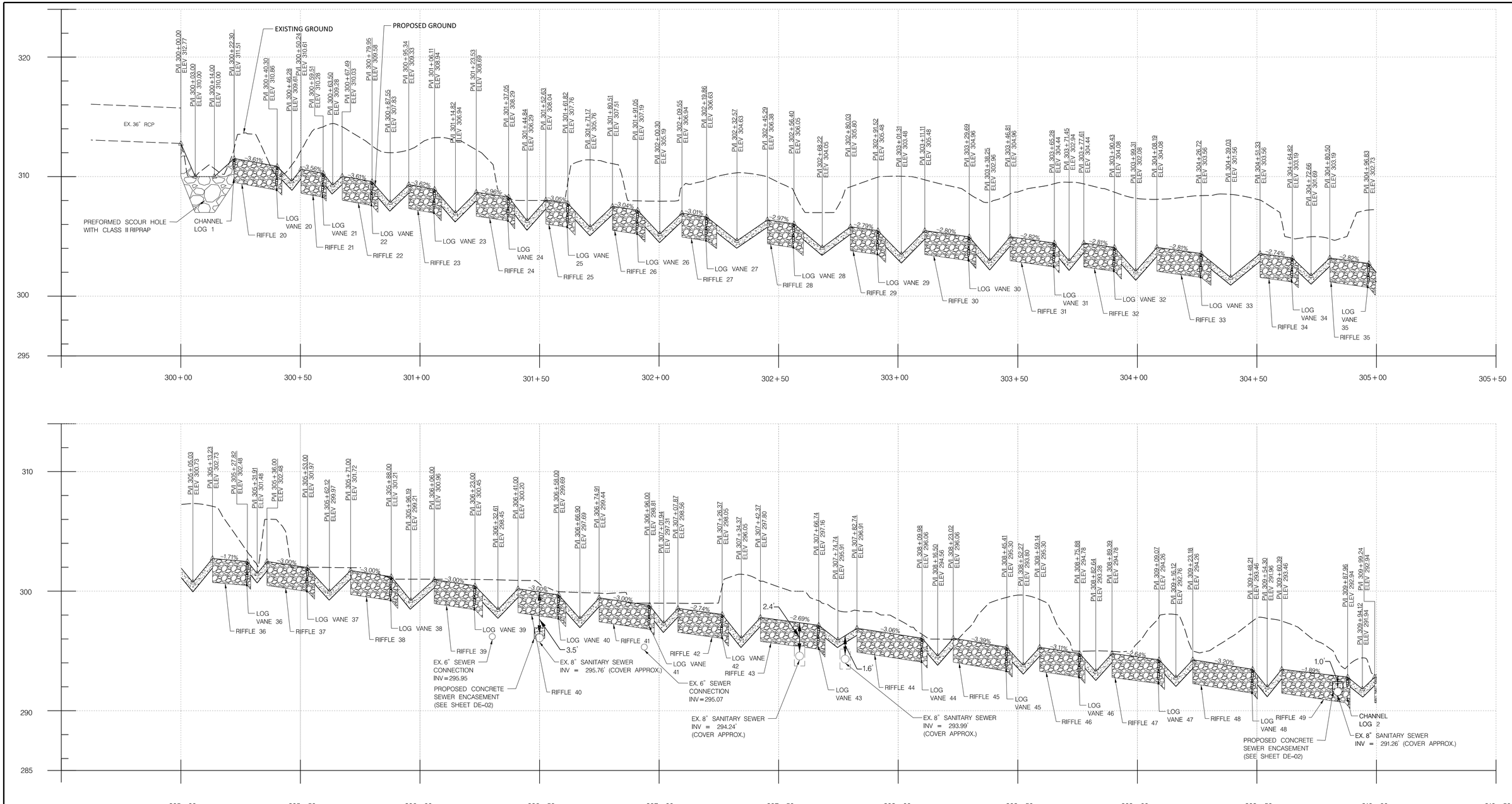
STREAM PROFILE

Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO
Drawing No. PR-01 of PR-03

Scale : H: 1" = 20' V: 1" = 4'
Date : FEBRUARY 2025
Sheet No. 18 of 47

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1" = 100'
BY: nhoward -

PLOTTED: 2/24/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\18_pPR-0001-Woodland.dgn



REACH 2 PROFILE

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

LEGEND

- RIFFLE GRADE CONTROL MIX
- CLASS II RIPRAP
- SALVAGED NATURAL CHANNEL MATERIAL
- COMMON BORROW
- BURIED LOG

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PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

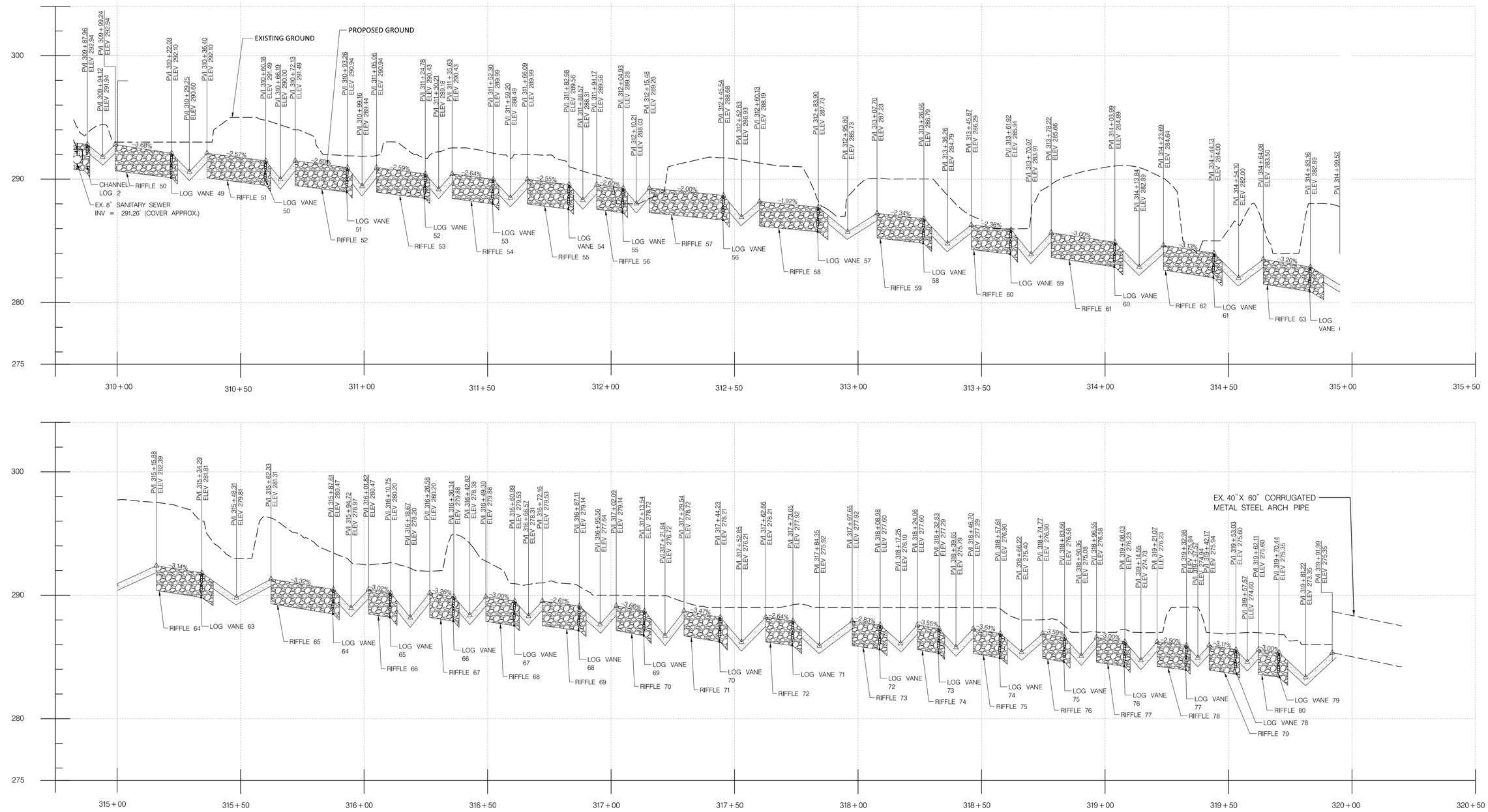
STREAM PROFILE

Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO
Drawing No. PR-02 of PR-03

Scale : H: 1" = 20' V: 1" = 4'
Date : FEBRUARY 2025
Sheet No. 19 of 47

ADC MAP: 21 GRID: H10
TAX MAP: 0049 GRID: 0003C
HCG BILLING ID No.:
HCG DWG ID No.:

BY: nhoward -
PLOTTED: 2/24/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\19_pPR-0002-Woodland.dgn



REACH 2 PROFILE CONTINUED

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

LEGEND

- RIFFLE GRADE CONTROL MIX
- CLASS II RIPRAP
- SALVAGED NATURAL CHANNEL MATERIAL
- COMMON BORROW
- BURIED LOG

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PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

STREAM PROFILE

Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO
Drawing No. PR-03 of PR-03

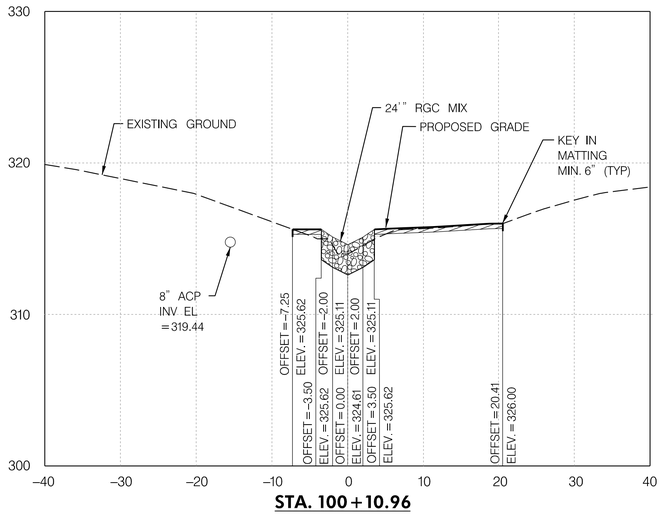
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Date : FEBRUARY 2025

Sheet No. 20 of 47

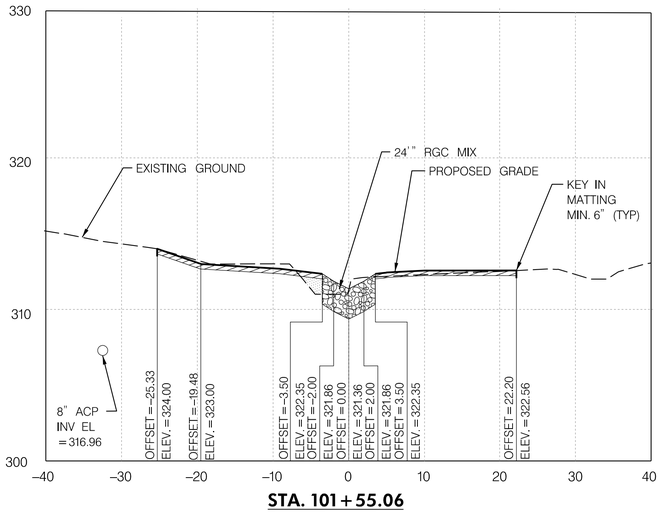
BY: sbazan -

PLOTTED: 2/28/2025
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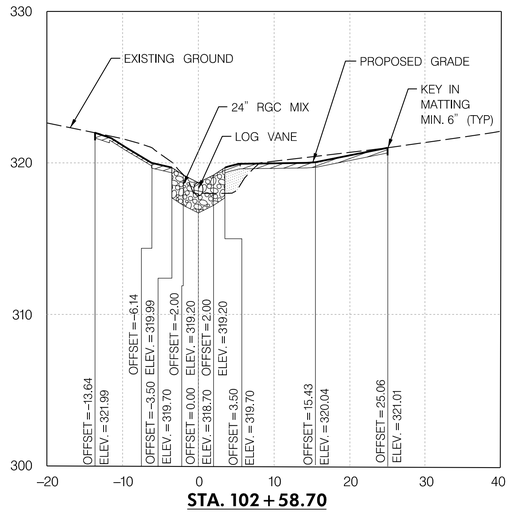
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HCG BILLING ID No.:
ADC MAP: 21 GRID: H10
HCG DWG ID No.:
SCALE: 1 inch



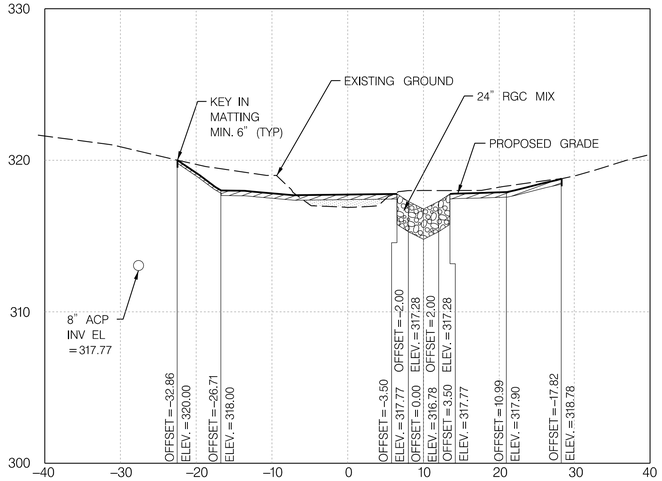
STA. 100+10.96



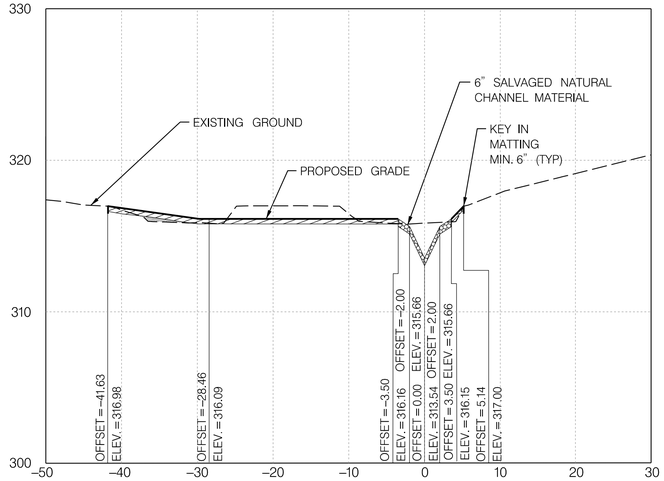
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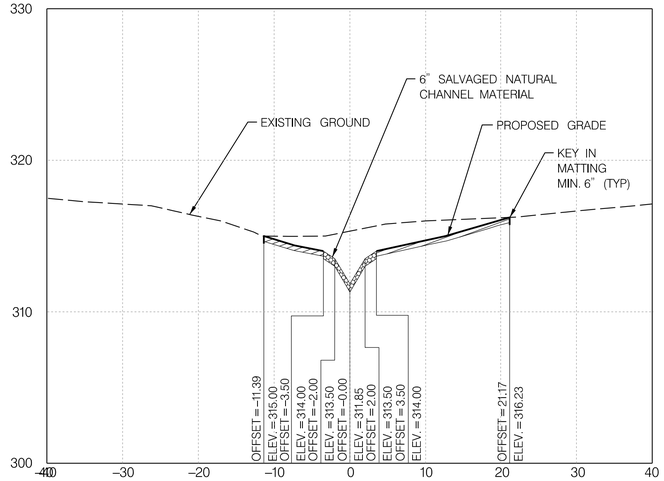
STA. 102+58.70



STA. 103+76.93



STA. 104+50.00



STA. 105+50.00

NOTE:
1. ALL STREAM SECTIONS TAKEN ALONG BASELINE OF CONSTRUCTION.

LEGEND

- FLOODPLAIN LOG
- PROPOSED GRADE
- EXISTING GROUND
- SOIL STABILIZATION MATTING
- RIFFLE GRADE CONTROL MIX (RGC)
- RIRPAP
- COMMON BORROW
- TOPSOIL
- SALVAGED NATURAL CHANNEL MATERIAL
- LOG VANE ARM
- STONE TOE

SCALE:
HORIZONTAL: 1" = 10'
VERTICAL: 1" = 5'

10' 0 10' 20'
SCALE: 1" = 10'

5' 0 5' 10'
SCALE: 1" = 5'

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PROJECT CONTRACT #59882	Revisions
GP #GRA-002122-2022	
SIGN AND SEAL	

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

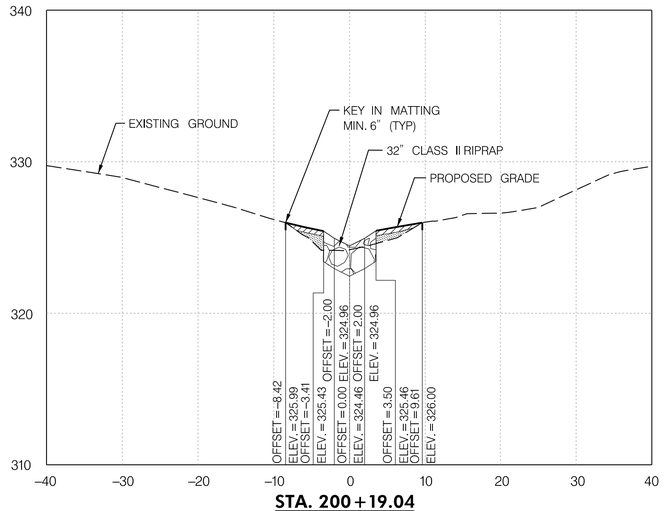
STREAM CROSS SECTIONS

Drawn By : NAH/MBR	Scale : H: 1" = 10' V: 1" = 5'
Designed By : NAH	Date : FEBRUARY 2025
Reviewed By : RMO	
Drawing No. XS-01 of XS-05	Sheet No. 21 of 47

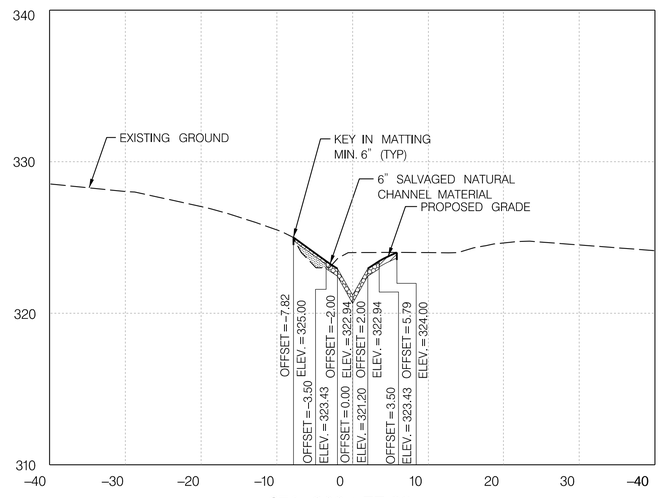
BY: nhoward –

PLOTTED: 2/26/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\21 - pXS-0001_Woodland.dgn

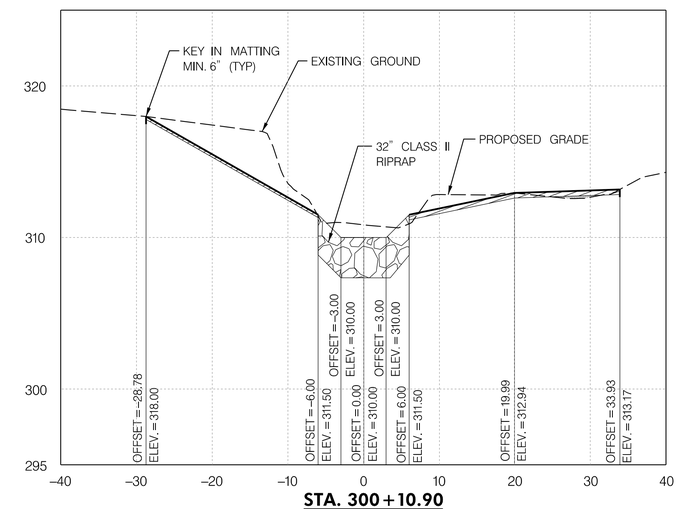
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SCALE: 1 INCH



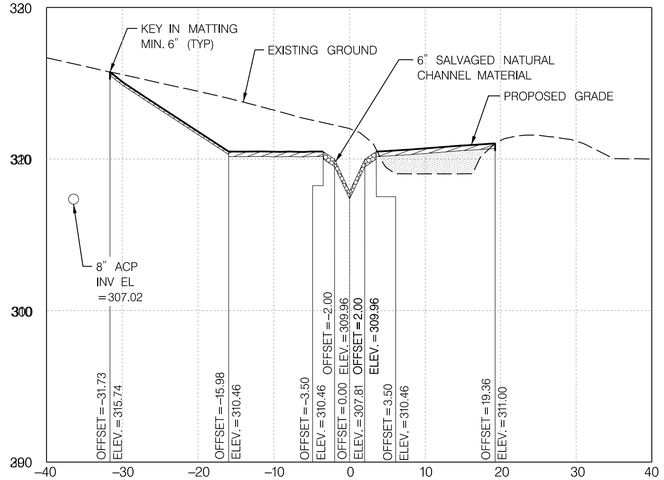
STA. 200+19.04



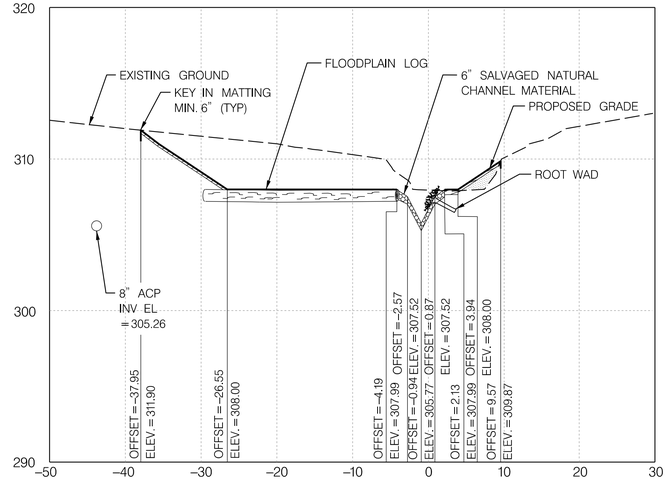
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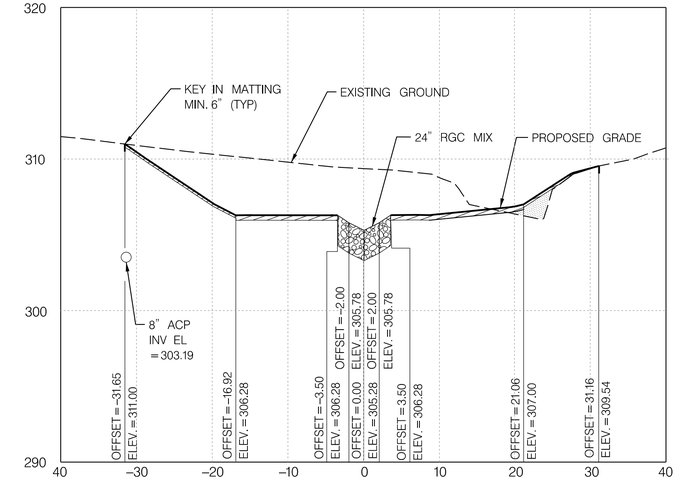
STA. 300+10.90



STA. 300+87.53



STA. 302+03.27



STA. 303+18.13

NOTE:
1. ALL STREAM SECTIONS TAKEN ALONG BASELINE OF CONSTRUCTION.

LEGEND

- FLOODPLAIN LOG
- PROPOSED GRADE
- EXISTING GROUND
- SOIL STABILIZATION MATTING
- RIFFLE GRADE CONTROL MIX (RGC)
- RIRPAP
- COMMON BORROW
- TOPSOIL
- SALVAGED NATURAL CHANNEL MATERIAL
- LOG VANE ARM
- STONE TOE

SCALE:
HORIZONTAL: 1" = 10'
VERTICAL: 1" = 5'

10' 0 10' 20'
SCALE: 1" = 10'

5' 0 5' 10'
SCALE: 1" = 5'

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PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

STREAM CROSS SECTIONS

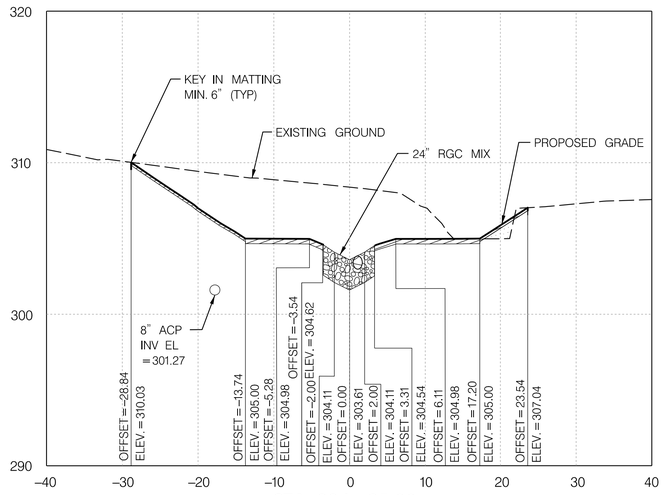
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Designed By : NAH
Reviewed By : RMO
Drawing No. XS-02 of XS-05

Scale : H: 1" = 10' V: 1" = 5'
Date : FEBRUARY 2025
Sheet No. 22 of 47

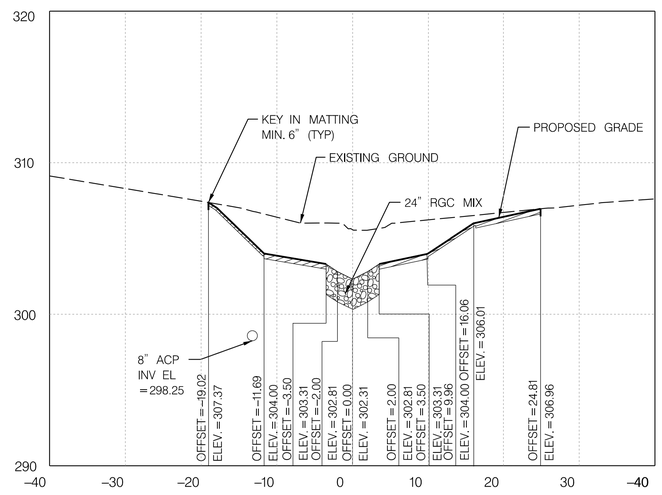
BY: nhoward -

PLOTTED: 2/26/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\22 - pXS-0002_Woodland.dgn

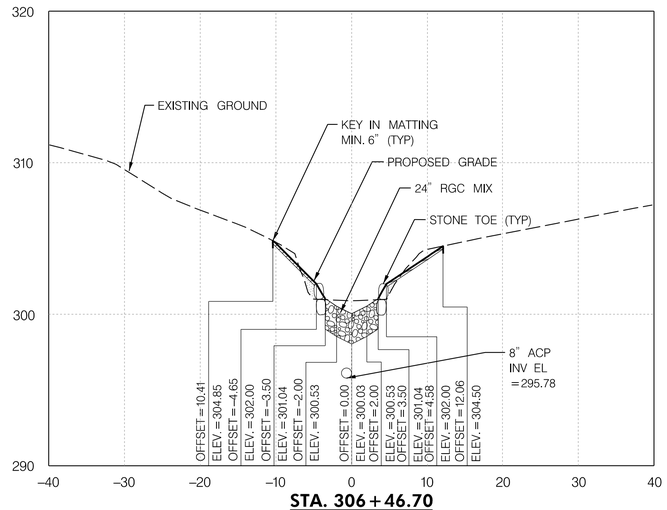
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SCALE: 1" = 10'



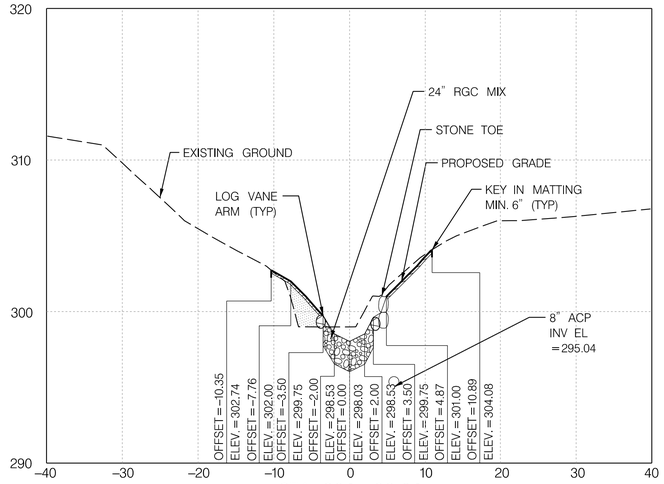
STA. 304+25.00



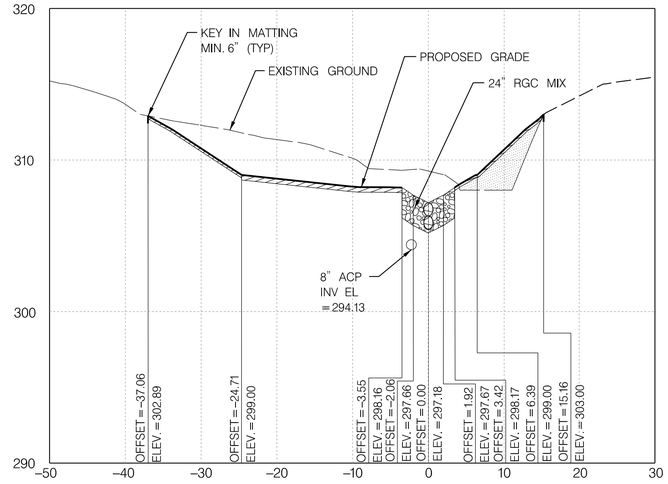
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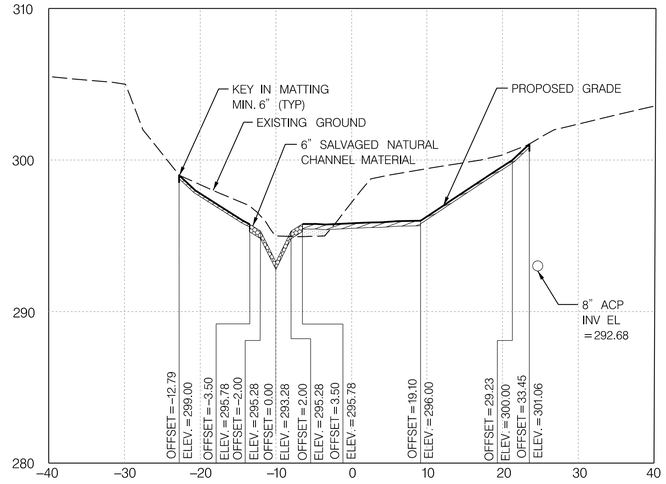
STA. 306+46.70



STA. 306+99.06



STA. 307+65.96



STA. 308+82.64

NOTE:
1. ALL STREAM SECTIONS TAKEN ALONG BASELINE OF CONSTRUCTION.

LEGEND

- FLOODPLAIN LOG
- PROPOSED GRADE
- EXISTING GROUND
- SOIL STABILIZATION MATTING
- RIFFLE GRADE CONTROL MIX (RGC)
- RIRPAP
- COMMON BORROW
- TOPSOIL
- SALVAGED NATURAL CHANNEL MATERIAL
- LOG VANE ARM
- STONE TOE

SCALE:
HORIZONTAL: 1" = 10'
VERTICAL: 1" = 5'

10' 0 10' 20'
SCALE: 1" = 10'

5' 0 5' 10'
SCALE: 1" = 5'

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PROJECT CONTRACT #59882

GP #GRA-002122-2022

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HARFORD COUNTY, MARYLAND

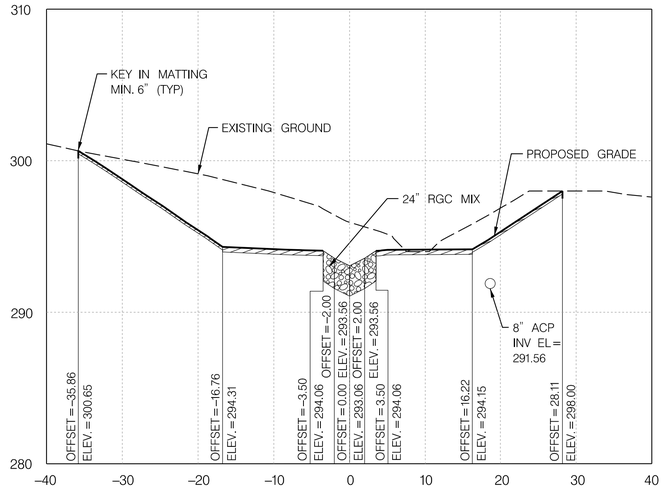
WOODLAND RUN STREAM RESTORATION

STREAM CROSS SECTIONS

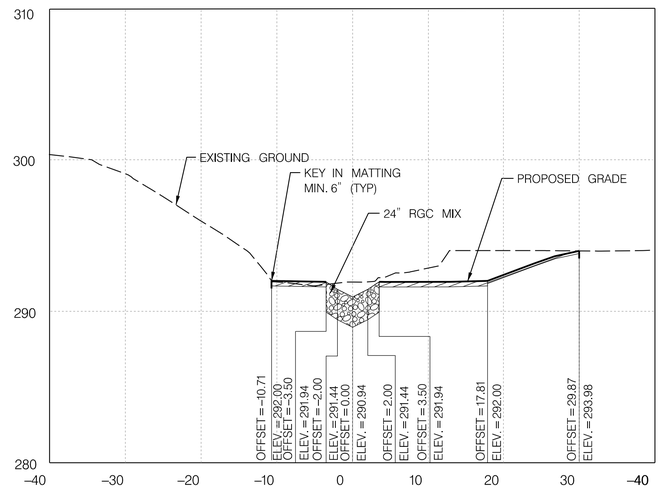
Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO
Date : FEBRUARY 2025
Scale : H: 1" = 10' V: 1" = 5'
Drawing No. XS-03 of XS-05
Sheet No. 23 of 47

TAX MAP:
HCG BILLING ID No.:
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TAX MAP: 0049 GRID: 0003C
HCG DWG ID No.: XS-01
SCALE: 1" = 10'
BY: nhoward –

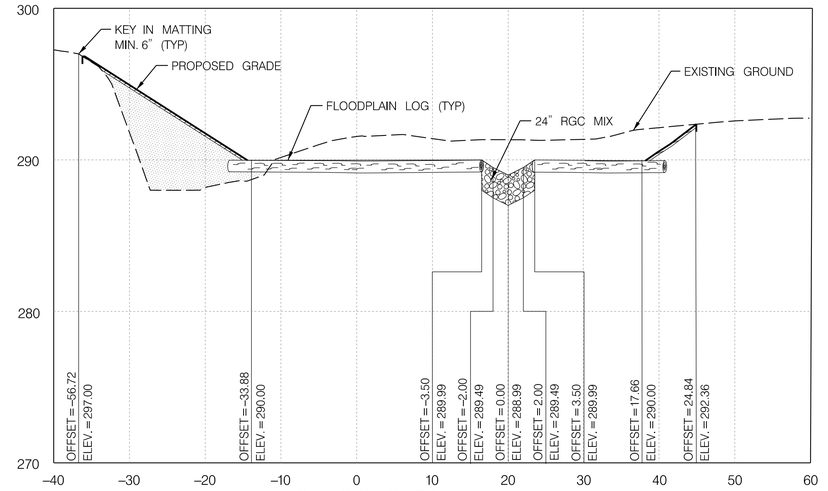
PLOTTED: 2/26/2025
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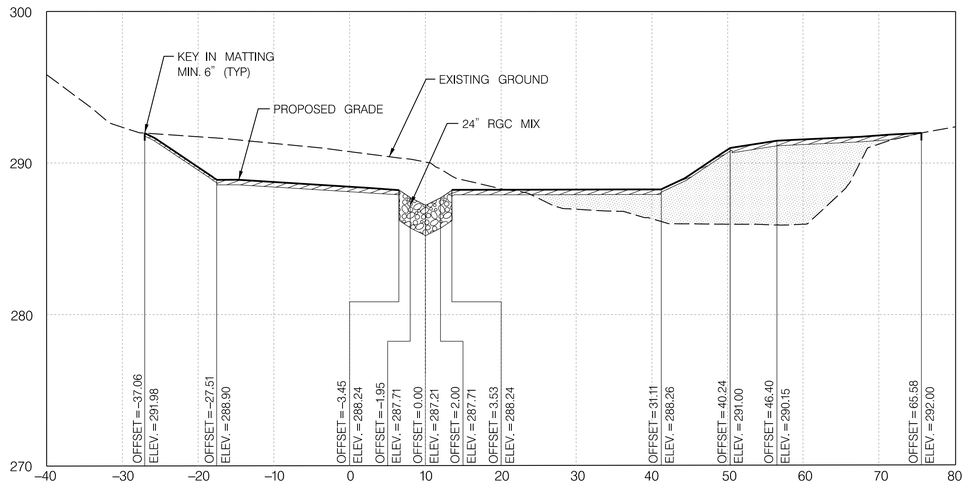
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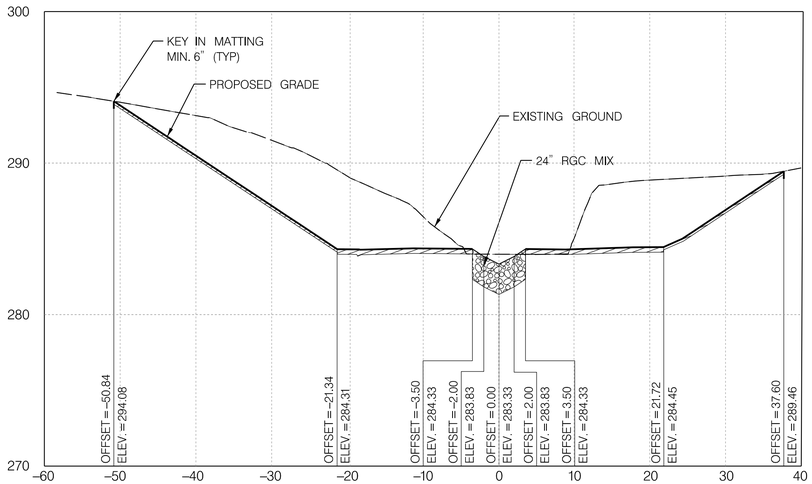
STA. 311+05.12



STA. 312+29.79



STA. 313+07.53



STA. 314+69.33

NOTE:
1. ALL STREAM SECTIONS TAKEN ALONG BASELINE OF CONSTRUCTION.

LEGEND

- FLOODPLAIN LOG
- PROPOSED GRADE
- EXISTING GROUND
- SOIL STABILIZATION MATTING
- RIFFLE GRADE CONTROL MIX (RGC)
- RIRPAP
- COMMON BORROW
- TOPSOIL
- SALVAGED NATURAL CHANNEL MATERIAL
- LOG VANE ARM
- STONE TOE

SCALE:
HORIZONTAL: 1" = 10'
VERTICAL: 1" = 5'

10' 0 10' 20'
SCALE: 1" = 10'

5' 0 5' 10'
SCALE: 1" = 5'

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PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

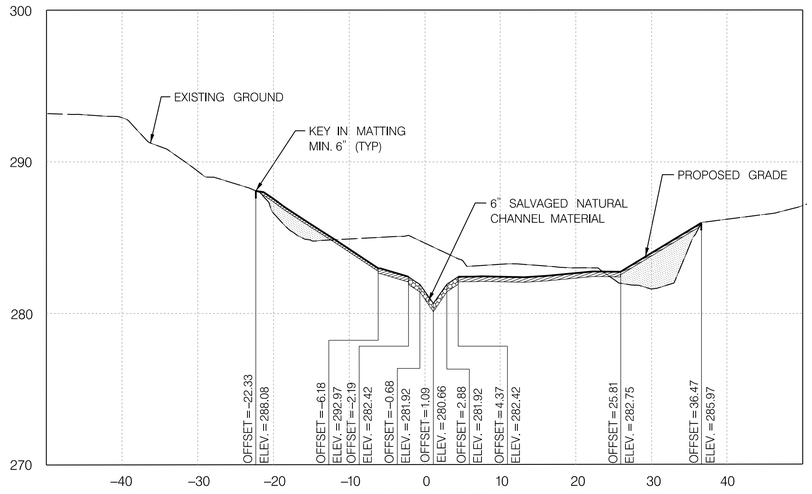
STREAM CROSS SECTIONS

Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO
Date : FEBRUARY 2025
Scale : H: 1" = 10' V: 1" = 5'
Drawing No. XS-04 of XS-05
Sheet No. 24 of 47

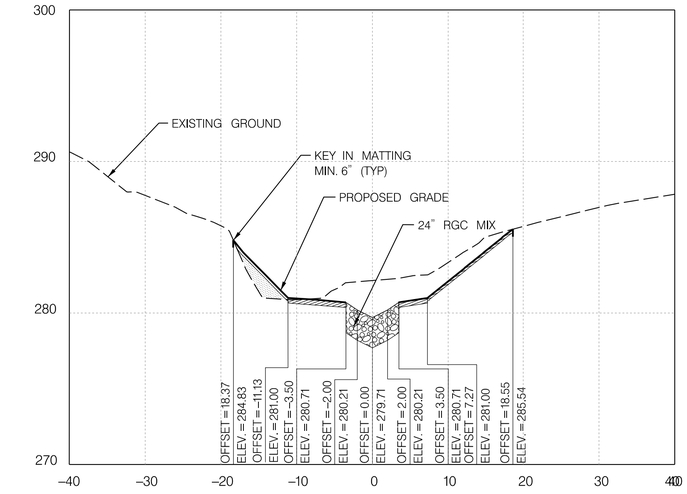
TAX MAP: ADC MAP: 21 GRID: H10
HCG BILLING ID No.: HCG DWG ID No.: 0049 GRID: 0003C
XS-01
SCALE: 1" = 10'

BY: nhoward -

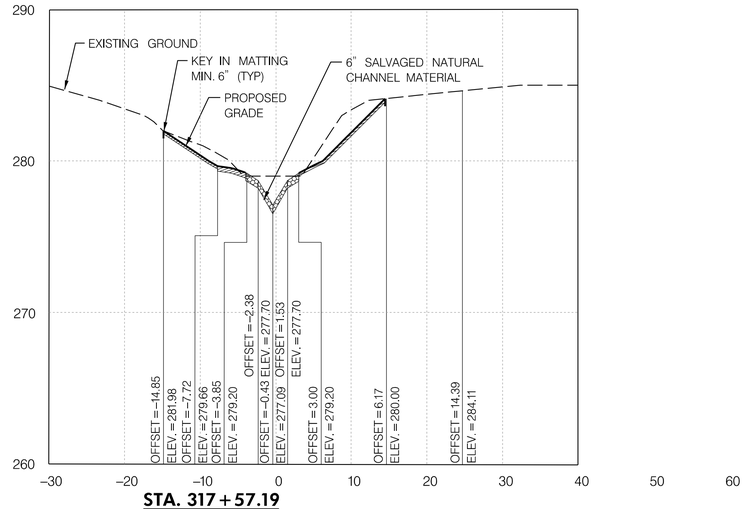
PLOTTED: 2/26/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\24 - pXS-0004_Woodland.dgn



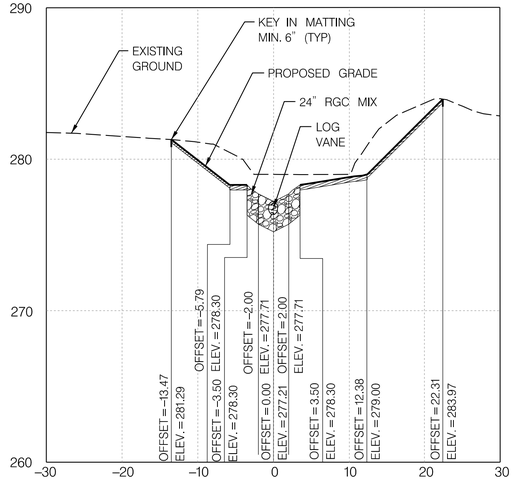
STA. 315+56.21



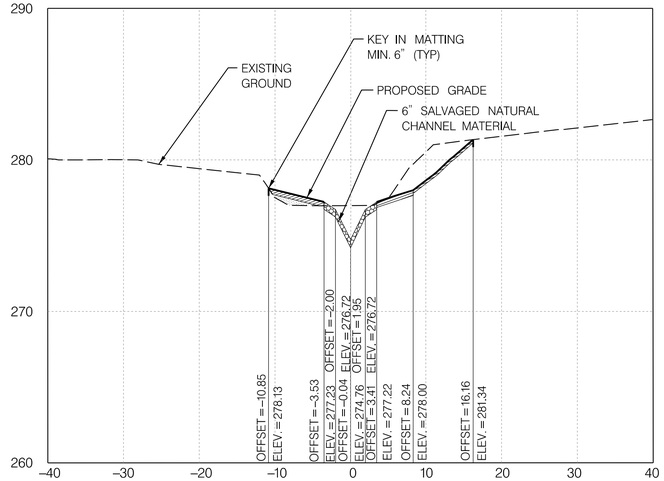
STA. 316+55.07



STA. 317+57.19



STA. 318+33.20



STA. 319+14.44

NOTE:
1. ALL STREAM SECTIONS TAKEN ALONG BASELINE OF CONSTRUCTION.

LEGEND

- FLOODPLAIN LOG
- PROPOSED GRADE
- EXISTING GROUND
- SOIL STABILIZATION MATTING
- RIFFLE GRADE CONTROL MIX (RGC)
- RIRPAP
- COMMON BORROW
- TOPSOIL
- SALVAGED NATURAL CHANNEL MATERIAL
- LOG VANE ARM
- STONE TOE

SCALE:
HORIZONTAL: 1" = 10'
VERTICAL: 1" = 5'

10' 0 10' 20'
SCALE: 1" = 10'

5' 0 5' 10'
SCALE: 1" = 5'

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PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

STREAM CROSS SECTIONS

Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO

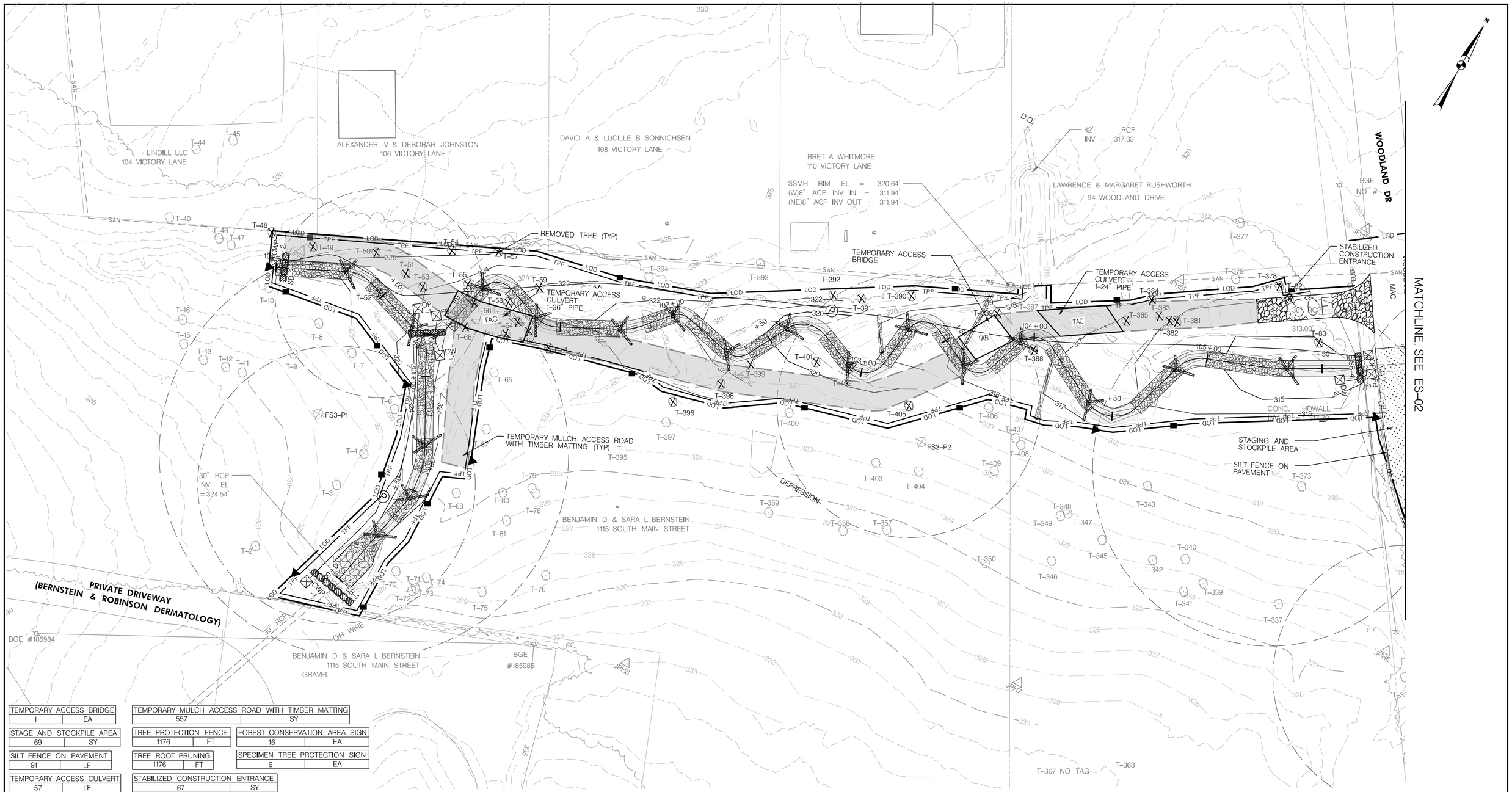
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Date : FEBRUARY 2025

Drawing No. XS-05 of XS-05
Sheet No. 25 of 47

BY: nhoward -

PLOTTED: 2/26/2025
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TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.: XS-01
SCALE: 1" = 10'



TEMPORARY ACCESS BRIDGE		TEMPORARY MULCH ACCESS ROAD WITH TIMBER MATTING			
1	EA	557	SY		
STAGE AND STOCKPILE AREA		TREE PROTECTION FENCE		FOREST CONSERVATION AREA SIGN	
69	SY	1176	FT	16	EA
SILT FENCE ON PAVEMENT		TREE ROOT PRUNING		SPECIMEN TREE PROTECTION SIGN	
91	LF	1176	FT	6	EA
TEMPORARY ACCESS CULVERT		STABILIZED CONSTRUCTION ENTRANCE			
57	LF	67	SY		

STANDARD PROPOSED SYMBOLS

- ☒FB FILTER BAG
- ☒OP OUTLET PROTECTION
- ☒DW DIRTY WATER
- ☒CWP CLEAN WATER PUMP
- Ⓟ PUMP
- SAND BAG
- STOCKPILE AREA
- SILT FENCE
- TEMPORARY MULCH ACCESS ROAD WITH TIMBER MATTING
- TAB TEMPORARY ACCESS BRIDGE
- TAC TEMPORARY ACCESS CULVERT
- SCE STABILIZED CONSTRUCTION ENTRANCE (SCE)
- SURVEYED TREE
- TREE CRITICAL ROOT ZONE
- TPF TREE PROTECTION FENCE
- TREE TO BE REMOVED
- HEAVY TREE PROTECTION
- FOREST CONSERVATION AREA SIGN
- SPECIMEN TREE PROTECTION SIGN

NOTES:

1. SEE FOREST CONSERVATION PLAN (FCP-01–FCP-04; FCN-01–FCN-04) FOR TREE REMOVAL, PROTECTION AND ROOT PRUNING INSTRUCTIONS.
2. SANDBAG DIVERSION SHALL BE INSTALLED AT THE BEGINNING OF EACH WORK DAY ONLY WITHIN THE CONSTRUCTION AREA(S) BEING WORKED AND REMOVED AT THE COMPLETION OF EACH WORK DAY. THE EXACT LOCATIONS MAY BE MODIFIED IN THE FIELD BASED ON EXISTING CONDITIONS. ANY ADJUSTMENTS MUST BE APPROVED BY THE ENGINEER.

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20' 0 20' 40'
SCALE: 1" = 20'

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PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

EROSION AND SEDIMENT CONTROL PLANS

Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO

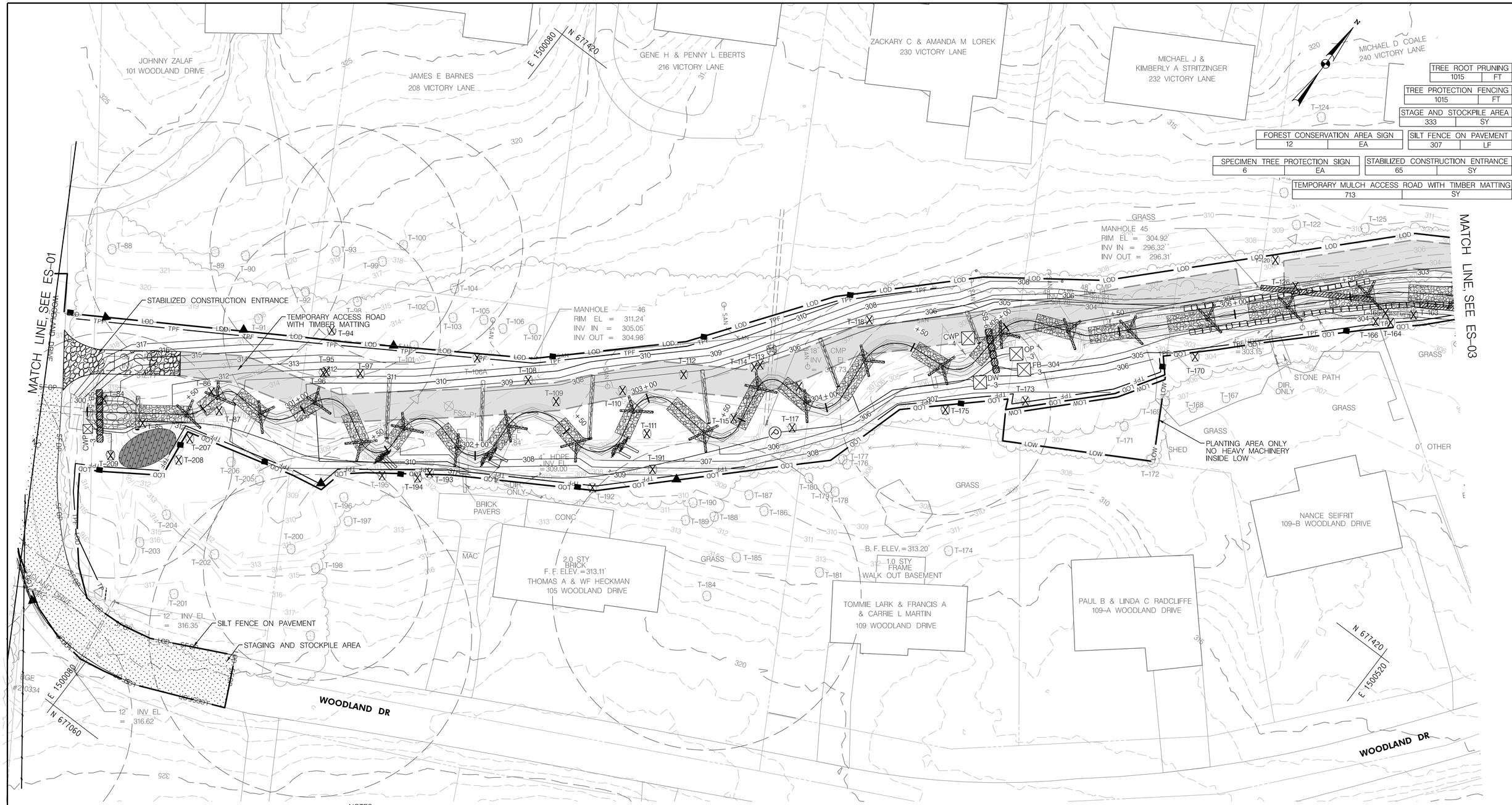
Scale : 1" = 20'
Date : FEBRUARY 2025

Drawing No. ES-01 of ES-04

Sheet No. 26 of 47

HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1" = 20'

BY: nhoward –
PLOTTED: 2/27/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\26_pES-P001-Woodland.dgn



TREE ROOT PRUNING	1015 FT
TREE PROTECTION FENCING	1015 FT
STAGE AND STOCKPILE AREA	333 SY
FOREST CONSERVATION AREA SIGN	12 EA
SILT FENCE ON PAVEMENT	307 LF
SPECIMEN TREE PROTECTION SIGN	6 EA
STABILIZED CONSTRUCTION ENTRANCE	65 SY
TEMPORARY MULCH ACCESS ROAD WITH TIMBER MATTING	713 SY

STANDARD PROPOSED SYMBOLS

- FB FILTER BAG
- OP OUTLET PROTECTION
- DW DIRTY WATER
- CWP CLEAN WATER PUMP
- P PUMP
- SAND BAG
- STOCKPILE AREA
- SF SILT FENCE >10-30%
- TEMPORARY MULCH ACCESS ROAD WITH TIMBER MATTING
- TAB TEMPORARY ACCESS BRIDGE
- TAC TEMPORARY ACCESS CULVERT
- STABILIZED CONSTRUCTION ENTRANCE (SCE)
- SURVEYED TREE
- TREE CRITICAL ROOT ZONE
- TREE PROTECTION FENCE
- TREE TO BE REMOVED
- LIMIT OF WORK
- HEAVY TREE PROTECTION
- FOREST CONSERVATION AREA SIGN
- SPECIMEN TREE PROTECTION SIGN

NOTES:

1. SEE FOREST CONSERVATION PLAN (FCP-01-FCP-04-FCN-01-04) FOR TREE REMOVAL, PROTECTION AND ROOT PRUNING INSTRUCTIONS.

2. SANDBAG DIVERSION SHALL BE INSTALLED AT THE BEGINNING OF EACH WORK DAY ONLY WITHIN THE CONSTRUCTION AREA(S) BEING WORKED AND REMOVED AT THE COMPLETION OF EACH WORK DAY. THE EXACT LOCATIONS MAY BE MODIFIED IN THE FIELD BASED ON EXISTING CONDITIONS. ANY ADJUSTMENTS MUST BE APPROVED BY THE ENGINEER.

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PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

EROSION AND SEDIMENT CONTROL PLAN

Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO

Scale : 1" = 20'
Date : FEBRUARY 2025

Drawing No. ES-02 of ES-04

Sheet No. 27 of 47

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10

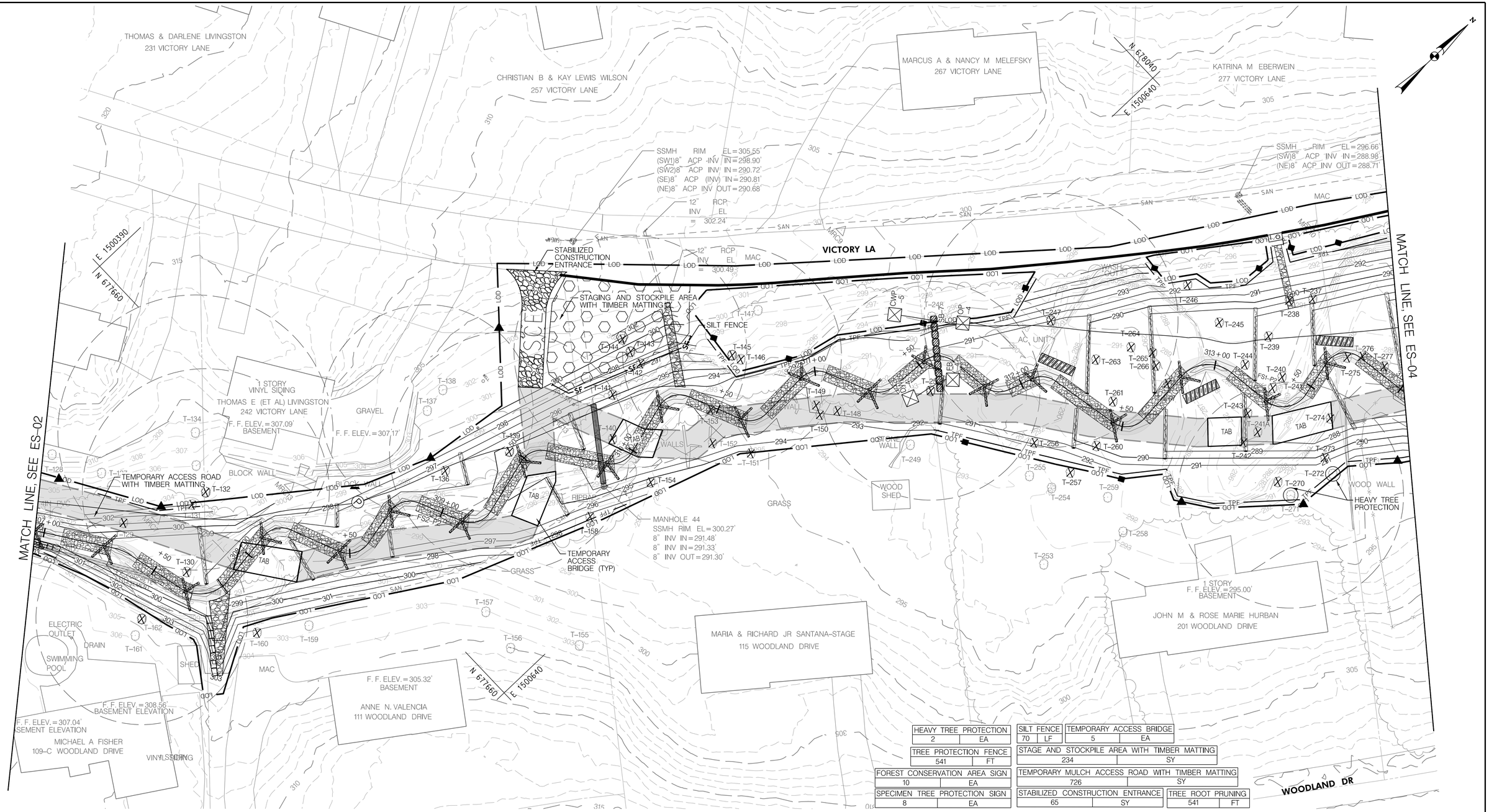
HCG BILLING ID No.:

HCG DWG ID No.:

SCALE: 1" = 20'

BY: nhoward -

PLOTTED: 2/27/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\27_pES-P002-Woodland.dgn



HEAVY TREE PROTECTION	
2	EA

TREE PROTECTION FENCE	
541	FT

FOREST CONSERVATION AREA SIGN	
10	EA

SPECIMEN TREE PROTECTION SIGN	
8	EA

SILT FENCE	
70	LF

TEMPORARY ACCESS BRIDGE	
5	EA

STAGE AND STOCKPILE AREA WITH TIMBER MATTING	
234	SY

TEMPORARY MULCH ACCESS ROAD WITH TIMBER MATTING	
726	SY

STABILIZED CONSTRUCTION ENTRANCE	
65	SY

TREE ROOT PRUNING	
541	FT

STANDARD PROPOSED SYMBOLS

- FB FILTER BAG
- OP OUTLET PROTECTION
- DW DIRTY WATER
- CWP CLEAN WATER PUMP
- P PUMP
- SAND BAG
- STOCKPILE AREA
- SILT FENCE
- TEMPORARY MULCH ACCESS ROAD WITH TIMBER MATTING
- TAB TEMPORARY ACCESS BRIDGE
- TAC TEMPORARY ACCESS CULVERT
- SCE STABILIZED CONSTRUCTION ENTRANCE (SCE)
- SURVEYED TREE
- TREE CRITICAL ROOT ZONE
- TREE PROTECTION FENCE
- TREE TO BE REMOVED
- HEAVY TREE PROTECTION
- STOCKPILE AREA WITH TIMBER MATTING
- FOREST CONSERVATION AREA SIGN
- SPECIMEN TREE PROTECTION SIGN

NOTES:

1. SEE FOREST CONSERVATION PLAN (FCP-01-FCP-04-FCN-01-FCN-04) FOR TREE REMOVAL, PROTECTION AND ROOT PRUNING INSTRUCTIONS.
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PROJECT CONTRACT #59882

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HARFORD COUNTY, MARYLAND

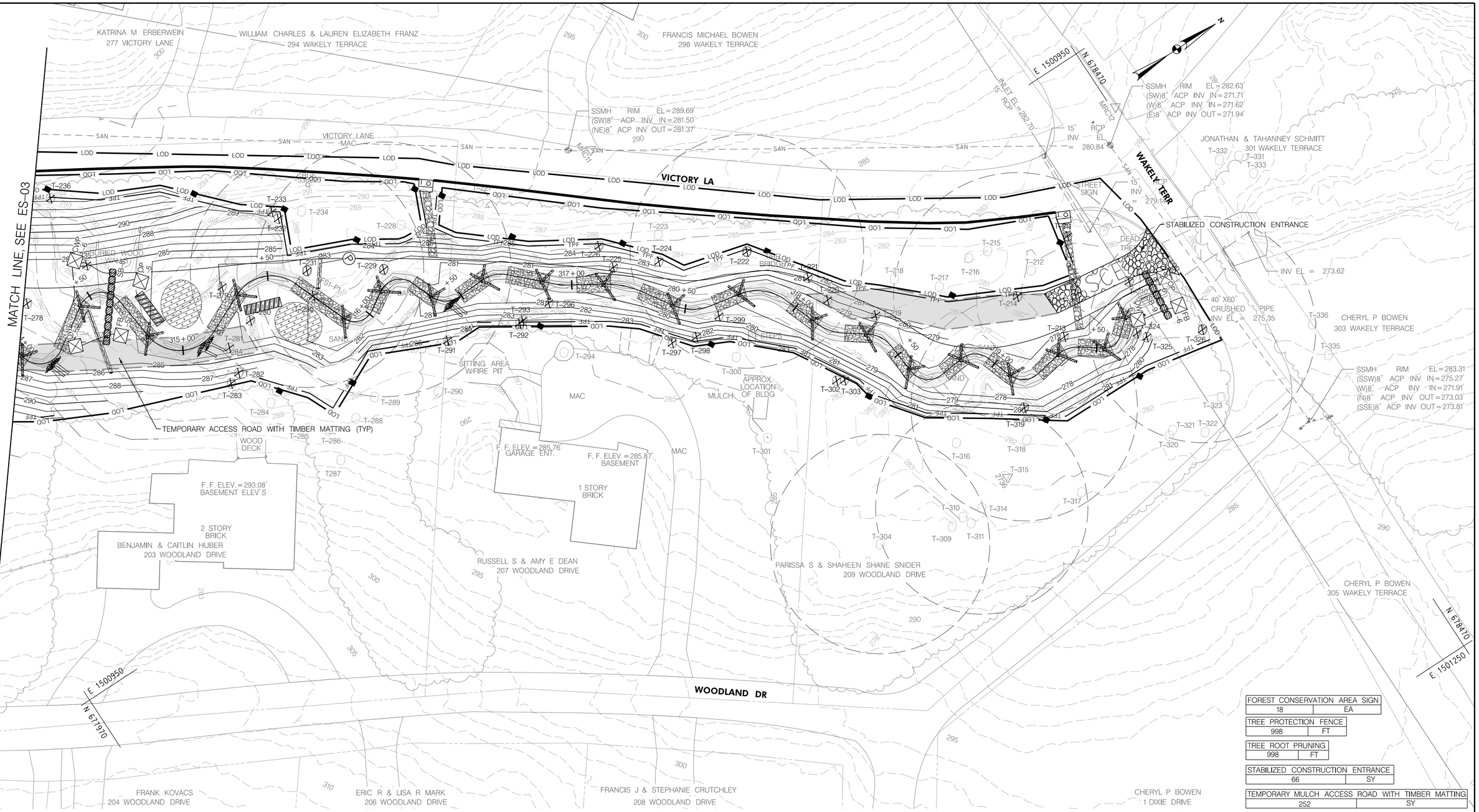
WOODLAND RUN STREAM RESTORATION

EROSION AND SEDIMENT CONTROL PLAN

Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO
Drawing No. ES-03 of ES-04
Scale : 1" = 20'
Date : FEBRUARY 2025
Sheet No. 28 of 47

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1" = 20'

BY: nhoward -
PLOTTED: 2/27/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\28_pES-P003-Woodland.dgn



FOREST CONSERVATION AREA SIGN	
18	EA

TREE PROTECTION FENCE	
998	FT

TREE ROOT PRUNING	
998	FT

STABILIZED CONSTRUCTION ENTRANCE	
66	SY

TEMPORARY MULCH ACCESS ROAD WITH TIMBER MATTING	
252	SY

STANDARD PROPOSED SYMBOLS

- ☒ FB FILTER BAG
- ☒ OP OUTLET PROTECTION
- ☒ DW DIRTY WATER
- ☒ CWP CLEAN WATER PUMP
- Ⓟ PUMP
- SAND BAG
- STOCKPILE AREA
- SF SILT FENCE >10-20%
- TEMPORARY MULCH ACCESS ROAD WITH TIMBER MATTING
- TAB TEMPORARY ACCESS BRIDGE
- TAC TEMPORARY ACCESS CULVERT
- SCE STABILIZED CONSTRUCTION ENTRANCE (SCE)
- SURVEYED TREE
- TREE CRITICAL ROOT ZONE
- TPF HEAVY TREE PROTECTION
- TREE TO BE REMOVED
- HEAVY TREE PROTECTION
- FOREST CONSERVATION AREA SIGN
- SPECIMEN TREE PROTECTION SIGN

NOTES:

1. SEE FOREST CONSERVATION PLAN (FCP-01-FCP-04-FCN-01-0FCN-04) FOR TREE REMOVAL, PROTECTION AND ROOT PRUNING INSTRUCTIONS.
2. SANDBAG DIVERSION SHALL BE INSTALLED AT THE BEGINNING OF EACH WORK DAY ONLY WITHIN THE CONSTRUCTION AREA(S) BEING WORKED AND REMOVED AT THE COMPLETION OF EACH WORK DAY. THE EXACT LOCATIONS MAY BE MODIFIED IN THE FIELD BASED ON EXISTING CONDITIONS. ANY ADJUSTMENTS MUST BE APPROVED BY THE ENGINEER.

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PROJECT CONTRACT #59882

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HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

EROSION AND SEDIMENT CONTROL PLANS

Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO
Scale : 1" = 20'
Date : FEBRUARY 2025
Drawing No. ES-04 of ES-04
Sheet No. 29 of 47

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1" = 100'
BY: nhoward -
PLOTTED: 2/27/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\29_pES-P004-Woodland.dgn

SEDIMENT CONTROL NOTES

1. THE CONTRACTOR/OWNER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS. FURTHER, NO CONSTRUCTION ACTIVITY SHALL TAKE PLACE UNTIL ALL REQUIRED PERMITS HAVE BEEN OBTAINED.

2. THE LIMITS OF DISTURBANCE SHALL BE CLEARLY DELINEATED IN THE FIELD PRIOR TO GRADING OF THE SITE TO ENSURE COMPLIANCE WITH APPROVED PLANS. ALL FOREST RETENTION AREAS WILL BE DELINEATED WITH BLAZE ORANGE FENCE AS WELL AS ANY SWM INFILTRATION PRACTICE PRIOR TO ANY CLEARING. WORK BEYOND THE LIMITS OF DISTURBANCE AND IN ANY AREA INSIDE THE FOREST RETENTION AND SWM INFILTRATION AREA IS CONSIDERED TO BE A VIOLATION OF THIS PLAN.

3. ALL SEDIMENT CONTROL PRACTICES MUST BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY. UPON COMPLETION OF THE INSTALLATION OF PERIMETER SEDIMENT CONTROL PRACTICES THE SITE MUST BE INSPECTED BY THE DEPARTMENT OF PUBLIC WORKS (DPW). NO ADDITIONAL CONSTRUCTION ACTIVITY WILL BE AUTHORIZED WITHOUT THE APPROVAL OF DPW.

4. ALL POINTS OF INGRESS AND EGRESS SHALL BE PROTECTED TO PREVENT TRACKING OF MUD INTO PUBLIC WAYS. DURING CONSTRUCTION, EVERY MEANS WILL BE TAKEN TO CONTROL SOIL EROSION AND SILTATION. IF NECESSARY A WASH RACK MAY NEED TO BE ESTABLISHED.

5. EARTH DIKES, SEDIMENT TRAPS, ETC. WILL BE LOCATED AS SHOWN ON THESE DRAWINGS. FIELD CHANGES AND MINOR ADJUSTMENTS ARE PERMISSIBLE AS LONG AS THE INSTALLATION FUNCTIONS AND CONFORMS TO SPECIFICATIONS. THE SITE INSPECTOR PRIOR TO INSTALLATION MUST APPROVE ALL SUCH CHANGES. MAJOR CHANGES TO THE APPROVED PLAN WILL REQUIRE RE-APPROVAL BY THE HARFORD SOIL CONSERVATION DISTRICT.

6. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:

   A. THREE CALENDAR DAYS ON SLOPES GREATER THAN 3:1, ALL WATERWAYS AND TO THE SURFACE OF ALL PERIMETER CONTROLS.

   B. SEVEN CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS OF THE PROJECT SITE.

7. DUST CONTROL MUST BE MANAGED AS PART OF ALL SEDIMENT CONTROL PLANS. FAILURE TO DO SO IS A VIOLATION OF THIS PLAN.

8. SEDIMENT BASINS MUST BE BUILT TO DESIGN SPECIFICATIONS SHOWN ON THE PLAN. IF THE BASIN IS TO BE USED AS A FUTURE SWM FACILITY, THE BASIN WILL BE BUILT IN ACCORDANCE WITH THE LATEST MD-378 STANDARDS AND SPECIFICATIONS. SPECIFIED MATERIALS MUST BE USED. NO CHANGES OR MODIFICATIONS WILL BE MADE WITHOUT WRITTEN AUTHORIZATION OF THE HARFORD SOIL CONSERVATION DISTRICT.

9. TEMPORARY FENCING SHALL BE PLACED AROUND ALL SEDIMENT BASINS, TRAPS, AND PONDS DURING CONSTRUCTION AND SITE GRADING.

10. AT THE END OF EACH WORKING DAY ALL SEDIMENT CONTROL PRACTICES WILL BE INSPECTED AND LEFT OPERATIONAL. A WEEKLY LOG WILL BE KEPT IN ACCORDANCE WITH NOI/NPDES REGULATIONS. A COPY OF THE APPROVED SEDIMENT CONTROL PLANS SHALL BE AVAILABLE AT THE SITE AT ALL TIMES.

11. ENSURE POSITIVE DRAINAGE TO ALL ROAD INLETS DURING ALL PHASES OF ROAD CONSTRUCTION TO ENSURE POSITIVE FLOW TO TRAPS AND OR BASINS.

12. CUT AND/OR FILL SHALL BE DONE IN CONFORMANCE WITH 2011 EROSION AND SEDIMENT CONTROL STANDARD AND SPECIFICATIONS FOR LAND GRADING.

13. SURFACE FLOWS OVER CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER REDIRECTING FLOWS FROM TRAVERSING THE SLOPES OR BY INSTALLING MECHANICAL DEVICES TO SAFELY CONVEY WATER DOWN SLOPES WITHOUT CAUSING EROSION.

14. OFF-SITE WASTE OR BORROW AREAS SHALL HAVE AN APPROVED EROSION AND SEDIMENT CONTROL PLAN PRIOR TO THE IMPORT OR EXPORT OF MATERIAL TO/FROM THE PROJECT SITE.

15. ALL MATERIAL ORIGINATING FROM THE DEVELOPMENT OF THE PROPERTY AND DEPOSITED ON THE PUBLIC RIGHT-OF-WAY SHALL BE IMMEDIATELY REMOVED.

16. STORM DRAIN INLETS AND OUTLETS SHALL BE PROTECTED PER 2020 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS.

17. TOPSOIL, LIMING, FERTILIZING, SEEDING, MULCHING, SOD, ETC. ARE ALL AN ESSENTIAL PART OF THE SEDIMENT CONTROL PLAN AND MUST BE COMPLETED ALONG WITH ALL OTHER PRACTICES.

18. TRAPS TO BE REMOVED SHALL BE DEWATERED AS PER THE 2020 EROSION AND SEDIMENT AND EROSION CONTROL STANDARDS AND SPECIFICATIONS.

19. PRIOR TO REMOVAL OF TRAPS OR CONVERSION OF SEDIMENT BASINS TO SWM FACILITIES. THE STORM DRAINS WILL BE FLUSHED.

20. SEDIMENT CONTROL PRACTICES WILL BE MAINTAINED UNTIL ALL DISTURBED AREAS FOR WHICH THE PRACTICES WERE INSTALLED HAVE BEEN STABILIZED. SEDIMENT CONTROL PRACTICES MAY BE REMOVED ONLY WITH THE AUTHORIZATION OF THE DPW INSPECTOR. ALL DISTURBED AREAS RESULTING FROM THE REMOVAL OF SEDIMENT CONTROL DEVICES SHALL BE STABILIZED IMMEDIATELY. REMOVAL PRIOR TO INSPECTOR'S APPROVAL CONSTITUTES A VIOLATION.

PERMANENT VEGETATIVE STABILIZATION

ALL DISTURBED AREAS WHICH ARE NOT BE PAVED, SHALL BE PERMANENTLY STABILIZED AS FOLLOWS:

A). SEEDBED PREPARATION:
LOOSEN UPPER THREE INCH BY RAKING,DISCING, OR OTHER ACCEPTABLE MEANS AFTER SPREADING FOUR INCHES OF TOP SOIL.

B). SOIL AMENDMENTS:
APPLY 500 LBS. PER ACRE OF 10-10-10 FERTILIZER AND TWO TONS PER ACRE OF LIME.

C). SEEDING:*
FOR PERIODS MARCH1 TO MAY 15 AND AUGUST 15 TO OCTOBER 15, SEED WITH 125LBS. PER ACRE OF TALL FESCUE, 15 LBS. PER ACRE OF PERENNIAL RYEGRASS, AND 10 LBS. OF KENTUCKY BLUEGRASS.

FOR PERIOD OF MARCH 16 TO AUGUST 14, SEED WITH 110 LBS. PER ACRE OF TALL FESCUE AND 3 LBS. PER ACRE OF WEEPING LOVEGRASS.

FOR PERIOD OF OCTOBER 16 TO FEBRUARY 28, PROTECT SITE BY: OPTIONS (1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, (2) USE SOD OR (3) SEED WITH 60LBS. PER ACRE OF TALL FESCUE AND MULCH WITH 2 TONS PER ACRE OF WELL ANCHORED STRAW.
NOTE: FOR QUICK COVER WITH TALL FESCUE, ADD 2 LBS. OF SMALL GRAIN PER 1,000 SQ.FT.

D). MULCHING SPECIFICATIONS
MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.

APPLY 2 TONS PER ACRE OF STRAW OVER ALL SEEDD AREAS. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHALL BE INCREASED TO 2.5 TONS PER ACRE.**

MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MUCH APPLICATION TO MINIMIZE LOSS BY WIND AND WATER. THE TYPE OF MULCH ANCHORING USED MUST COMPLY WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS.

* IF OTHER SEED MIXES ARE TO BE SUBSTITUTED, THEY MUST COMPLY WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS, CHAPTER 20, TABLE 25.
** IF A DIFFERENT TYPE OF MULCH IS TO BE USED, IT MUST COMPLY WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS, CHAPTER 20.

TEMPORARY VEGETATION STABILIZATION

A). SEEDBED PREPARATION:
LOOSEN UPPER THREE INCHES BY DISCING, RAKING OR OTHER ACCEPTABLE MEANS.

B). SOIL AMENDMENTS:
APPLY 600 LBS. PER ACRE OF 10-10-10 FERTILIZER AND TWO TONS PER ACRE OF LIME.

C). SEEDING:
FOR PERIOD OF MARCH 11 TO APRIL 30 AND AUGUST 15 TO NOVEMBER 15, SEED WITH 2.5 BU PER ACRE OF CEREAL RYE PLUS 30 LBS. PER ACRE OF TALL FESCUE OR 5 LBS. PER ACRE OF REDTOP OR 20 LBS. PER ACRE OF PERENNIAL RYEGRASS.

FOR PERIODS LOF MAY1 TO AUGUST 14, SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS OR 40 LBS. PER ACRE OF JAPANESE OR FOXTAIL MILLET.

FOR PERIODS OF NOVEMBER 16 TO FEBRUARY 28, PROTECT THE SITE BY APPLYING TWO TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

D). MULCHING SPECIFICATIONS:
MULCH SHALL BE APPLIED TO ALL SEEDED AREAS. IMMEDIATELY AFTER SEEDING.
APPLY TWO TONS PER ACREA OF STRAW OVER ALL SEEDED AREAS. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHALL BE INCREASED TO 25 TONS PER ACRE.**
MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND AND AETER. THE MULCH ANCHORING TOOL MUST COMPLY WITH THE 1994 MARYLAND STANDARDS SPECIFICATIONS.

* IF OTHER SEED MIXES ARE TO BE SUBSTITUTED, THEY MUST COMPLY WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS, CHAPTER 20, TABLE 25
** IF A DIFFERENT TYPE OF MULCH IS TO BE USED, IT MUST COMPLY WITH THE 1994 MAYLAND STANDARDS AND SPECIFICATIONS, CHAPTER 20.

SITE ANALYSIS

TOTAL AREA TO BE STABLIZED:	3.3 AC
TOTAL DISTURBED AREA:	3.3 AC
TOTAL AREA TO BE PAVED:	0 AC
TOTAL CUT:	4799 CY
TOTAL FILL:	1204 CY
NPDES ID POINT:	N: 678,446.9184
	E: 1,501,053.4937

OWNERS CERTIFICATION

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATION OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HARFORD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, OR AS DEEMED NECESSARY.

SIGNED _____ DATE _____

PRINTED NAME _____

ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL AND STORM WATER MANAGEMENT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED WITH THE *2011 MARYLAND STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL*

ENGINEER _____ DATE _____

EROSION AND SEDIMENT CONTROL PLAN #: _____

TECHNICAL REVIEW BY:

_____
HARFORD SOIL CONSERVATION DISTRICT

APPROVED BY:

_____
HARFORD SOIL CONSERVATION DISTRICT

ANY SOIL MATERIAL LEAVING THE SITE SHALL ONLY BE DISPOSED OF AT SITES WITH AN APPROVED EROSION AND SEDIMENT CONTROL PLAN AND AN ACTIVE GRADING PERMIT

NOT FOR CONSTRUCTION

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PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.LICENSE NO. XXXXX, EXPIRATION DATE: XX/XX/XXXX.

PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

EROSION AND SEDIMENT CONTROL NOTES

Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO

Scale : NOT TO SCALE
Date : FEBRUARY 2025

Drawing No. EN-01 of EN-02

Sheet No. 30 of 47

BY: sbazan -

PLOTTED: 2/28/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\30_pES-N001-Woodland.dgn

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

DEFINITION
THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.

PURPOSE
TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

CONDITIONS WHERE PRACTICE APPLIES
WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

CRITERIA

A. SOIL PREPARATION
1. TEMPORARY STABILIZATION
   A. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
   B. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
   C. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
2. PERMANENT STABILIZATION
   A. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
      I. SOIL PH BETWEEN 6.0 AND 7.0.
      II. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
      III. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
      IV. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
      V. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
   B. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
   C. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES.
   D. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
   E. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRIABLE. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

B. TOPSOILING
1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.
2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.
3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
   A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
   B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
   C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
   D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:
   A. TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1.5 INCHES IN DIAMETER.
   B. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
   C. TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.
6. TOPSOIL APPLICATION
   A. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
   B. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
   C. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING B.14 AND SEEDBED PREPARATION.

C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.
3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE.
4. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

TEMPORARY SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): 6B SEED MIXTURE (FROM TABLE B.1)					FERTILIZER RATE (10-20-20)	LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS		
	ANNUAL RYEGRASS	40 LB/ACRE	3/01 - 5/15 8/01 - 10/15	1/2"	436 LB/AC (10 LB/1000 SF)	2 TONS/AC (90 LB/1000 SF)
	FOXTAIL MILLET	30 LB/ACRE	5/16 - 7/31	1/2"		

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

DEFINITION
THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE
TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

CONDITIONS WHERE PRACTICE APPLIES
TO THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

CRITERIA

A. SEEDING
1. SPECIFICATIONS
   A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
   B. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
   C. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
   D. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
2. APPLICATION
   A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
      I. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
      II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT
   B. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
      I. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
      II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
   C. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
      I. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P (PHOSPHOROUS), 200 POUNDS PER ACRE; K (POTASSIUM), 200 POUNDS PER ACRE.
      II. LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
      III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
      IV. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B. MULCHING
1. MULCH MATERIALS (IN ORDER OF PREFERENCE)
   A. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
   B. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
      I. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
      II. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
      III. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
      IV. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
      V. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.CONTACT.
2. APPLICATION
   A. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
   B. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
   C. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
3. ANCHORING
   A. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
      I. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
      II. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
      III. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
      IV. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

PERMANENT SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): 6B SEED MIXTURE (FROM TABLE B.3)					FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P205	K20	
1	SWITCH GRASS CREEPING RED FESCUE PATRIDGE PEA	10 15 4	2/15 - 5/31	1/4" - 1/2"	45 LB/AC (1.0 LB/1000 SF)	90 LB/AC (2 LB/1000 SF)	90 LB/AC (2 LB/1000 SF)	2 TONS/AC (90 LB/1000 SF)
8	TALL FESCUE (85%),	100	2/15 - 4/30 8/15 - 11/30					
9	TALL FESCUE KENTUCKY BLUEGRASS PERENNIAL RYEGRASS	60 40 20	2/15 - 4/30 8/15 - 11/30					

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PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. XXXXX, EXPIRATION DATE: XX/XX/XXXX.

PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

EROSION AND SEDIMENT CONTROL NOTES

Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO
Drawing No. EN-02 of EN-02

Scale : NOT TO SCALE
Date : FEBRUARY 2025
Sheet No. 31 of 47

BY: mroberts -
PLOTTED: 2/10/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\32_pES-N002-Woodland.dgn

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1" = 100'

SEQUENCE OF CONSTRUCTION

1. THE CONTRACTOR SHALL NOTIFY HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS DPW S/C INSPECTOR AT (410-638-3127 X2434) AT LEAST SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITY AND, UNLESS WAIVED, SHALL BE REQUIRED TO HOLD A PRE-CONSTRUCTION MEETING BETWEEN PROJECT REPRESENTATIVES AND A REPRESENTATIVE OF HARFORD COUNTY.
2. LIMIT OF DISTURBANCE, ACCESS ROUTES, AND STAGING AREAS SHALL BE STAKED AND REVIEWED IN THE FIELD WITH THE ENGINEER PRIOR TO CONSTRUCTION TO ALLOW FOR ADJUSTMENTS. TREE TAKES AND TREE PROTECTION PLANKING SHALL BE REVIEWED IN THE FIELD WITH THE ENGINEER. HOSES, PUMPS, AND FILTER BAGS MAY BE LOCATED OUTSIDE THE LOD WITH PERMISSION FROM THE E&S INSPECTOR AND PROJECT ENGINEER. ANY ADJUSTMENTS MUST BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.
3. TREE PROTECTION FENCE (TPF) SHALL BE INSTALLED ALONG THE LIMITS OF DISTURBANCE (LOD) WHERE THE LOD IS ADJACENT TO FOREST TO PROTECT TREES FROM ACCIDENTAL ENCROACHMENT AND IMPACT. APPROVAL BY THE ENGINEER IS REQUIRED IN ORDER TO INSTALL TPF. INSTALL TPF IMMEDIATELY AFTER CONSTRUCTION PHASE LOD STAKEOUT AND PRIOR TO THE INSTALLATION OF SEDIMENT AND EROSION CONTROLS.
4. CONTRACTOR TO INSTALL ALL TREE PROTECTION MEASURES PRIOR TO CLEARING AND GRUBBING IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND THE APPROVED TREE PRESERVATION PROGRAM UNDER SUPERVISION OF CONTRACTOR'S LICENSED TREE EXPERT (LTE). FOR LOCATIONS OF HEAVY TREE PROTECTION PLANKING REFER TO THE EROSION AND SEDIMENT CONTROL PLANS (DWGS. ES-01-ES-04).
5. CLEAR AND GRUB FOR THE AREA REQUIRED FOR INSTALLATION OF THE STABILIZED CONSTRUCTION ENTRACES (SCE), SANDBAG DIVERSION (SD), DIRTY WATER PUMP (DWP), CLEAN WATER PUMP (CWP), OUTFALL PROTECTION (OP), TEMPORARY MULCH ACCESS ROAD WITH TIMBER MATTING (MAR), AND PERIMETER CONTROLS. CONTRACTOR TO SALVAGE AND STOCKPILE ALL SALVAGEABLE LOGS DURING CLEARING AND GRUBBING. CONTRACTOR TO INSTALL ALL TREE PROTECTION MEASURES PRIOR TO CLEARING AND GRUBBING.
6. INSTALL SCE, MAR, SILT FENCE, AND SILT FENCE ON PAVEMENT PRIOR TO ADDITIONAL CLEARING AND GRUBBING.
7. SANDBAG DIVERSION SHALL BE INSTALLED AT THE BEGINNING OF EACH WORK DAY ONLY WITHIN THE CONSTRUCTION AREA(S) BEING WORKED AND REMOVED AT THE COMPLETION OF EACH WORK DAY. THE EXACT LOCATIONS MAY BE MODIFIED IN THE FIELD BASED ON EXISTING CONDITIONS. ANY ADJUSTMENTS MUST BE APPROVED BY THE ENGINEER.
8. OUTFALL PROTECTION, DIRTY WATER PUMPS AND CLEAN WATER PUMPS TO BE INSTALLED AT THE BEGINNING OF EACH WORK DAY AND REMOVED DAILY. NO IN-STREAM WORK ALLOWED DURING RUNOFF PRODUCING PRECIPITATION EVENTS THAT EXCEEDS PUMPING CAPACITY. THE EXACT LOCATIONS MAY BE MODIFIED IN THE FIELD BASED ON EXISTING CONDITIONS. ANY ADJUSTMENTS MUST BE APPROVED BY THE ENGINEER.
9. THE ACCESS ROAD, STOCKPILE AREAS, OUTFALL PROTECTION AND SANDBAG DIVERSION WILL BE REMOVED AT THE COMPLETION OF EACH CONSTRUCTION PHASE AND IN CONJUNCTION WITH THE FLOODPLAIN GRADING UNLESS OTHERWISE NOTED OR AT THE IN-FIELD DIRECTION OF THE ENGINEER.
10. UPON COMPLETION OF ALL CONSTRUCTION, INSTALL PERMANENT PLANTINGS PER THE LANDSCAPE SCHEDULE AND PLANS. COMPLETE SAME DAY STABILIZATION FOR ANY DISTURBANCE.
11. UPON APPROVAL OF THE INSPECTOR, REMOVE REMAINING EROSION AND SEDIMENT CONTROL MEASURES AND STABILIZE ANY AREAS DISTURBED BY THEIR REMOVAL.

CONSTRUCTION NOTES

1. BEFORE MATERIAL CAN LEAVE THE SITE, ALL OFF-SITE STOCKPILING MUST BE APPROVED BY THE HARFORD COUNTY SOIL CONSERVATION DISTRICT.
2. WHEN THE SANDBAG DIVERSIONS AND DIRTY WATER PUMPS ARE USED, THE LOCATION OF THE HOSES AND FILTER BAGS MAY BE MODIFIED IN THE FIELD BASED ON EXISTING CONDITIONS.
3. AT THE END OF EACH WORK DAY THE CONTRACTOR SHALL STABILIZE ANY DISTURBED AREA NOT DIRECTED TO AN EROSION AND SEDIMENT CONTROL DEVICE AND AS NOTED NEEDING SAME DAY STABILIZATION.
4. PUMP AROUND PRACTICES, INCLUDING NECESSARY SANDBAGS, SHALL BE IN PLACE AND FUNCTIONAL PRIOR TO BEGINNING INSTREAM ACTIVITIES EACH DAY. AT THE END OF EACH WORK DAY, THE SANDBAG DIVERSION SHALL BE REMOVED TO RE-ESTABLISH BASEFLOW AND PROVIDE A FLOW PATH DURING STORM FLOWS FOR ALL TIMES WHEN THE PUMP AROUND IS NOT ACTIVE.
5. THERE SHALL BE NO LIME, FERTILIZER, OR OTHER AMENDMENTS WHEN SEED IS APPLIED FOR STABILIZATION.
6. STOCKPILE SHALL HAVE A MAXIMUM HEIGHT OF 20' AND A SIDE SLOPE NOT GREATER THAN 2:1. ALL STAGING AND STOCKPILE AREAS HAVE TRENCHLESS SUPER SILT FENCE ON DOWNSTREAM SIDE AS INDICATED ON PLANS.

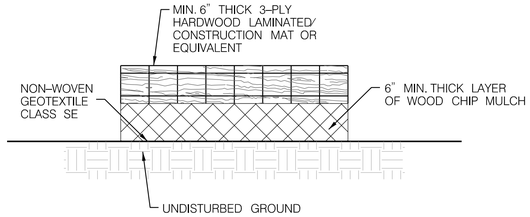
STREAM CONSTRUCTION

1. INSTALL STABILIZED CONSTRUCTION ENTRANCE, TREE PROTECTION FENCE MULCH ACCESS ROAD WITH TIMBER MATTING, HEAVY TREE PROTECTION PLANKING, SILT FENCE, SILT FEMCE ON PAVEMENT, AND STAGING AND STOCKPILE AREA AS INDICATED ON PLANS. CONTRACTOR TO PLACE TEMPORARY GRADING FOR COMPLETION OF ACCESS ROAD WITHIN THE LOD.
2. INSTALL SANDBAG DIVERSION, CLEAN WATER PUMP, DIRTY WATER PUMP, FILTER BAG, DIVERSION HOSE, AND OUTFALL PROTECTION. SEE DWG. ES-01 TO ES-04 FOR APPROXIMATE LOCATIONS. CONTRACTOR TO HAND PLACE SAND BAGS.
3. PRIOR TO ANY INSTREAM OR BANK WORK, PUMP AROUND THE WORK AREA BEHIND UPSTREAM SANDBAG DIVERSION USING CLEAN WATER PUMP AND DEWATER ANY SITTING WATER BETWEEN THE TWO SANDBAG DIVERSIONS USING DIRTY WATER PUMP AND FILTER BAG.
4. COMPLETE IN-STREAM WORK FROM STATION 100+00 TO 100+76.27 FROM UPSTREAM TO DOWNSTREAM.
   COMPLETE IN-STREAM WORK FROM STATION 200+00 TO 201+18.35 FROM UPSTREAM TO DOWNSTREAM.
   COMPLETE IN-STREAM WORK FROM STATION 100+76.27 TO 105+65.66 FROM UPSTREAM TO DOWNSTREAM.
   COMPLETE IN-STREAM WORK FROM STATION 306+16 TO 300+00 FROM DOWNSTREAM TO UPSTREAM.
   COMPLETE IN-STREAM WORK FROM STATION 306+16 TO 309+75 FROM UPSTREAM TO DOWNSTREAM.
   COMPLETE IN-STREAM WORK FROM STATION 315+25 TO 309+75 FROM DOWNSTREAM TO UPSTREAM.
   COMPLETE IN-STREAM WORK FROM STATION 315+25 TO 319+91.99 FROM UPSTREAM TO DOWNSTREAM.
   DO NOT DISTURB MORE THAN CAN BE BROUGHT TO FINISHED GRADE AND STABILIZED IN A DAY.
5. PLACE PERMANENT AND TEMPORARY SEED AS INDICATED PRIOR TO THE PLACEMENT OF ANY STABILIZATION MATTING OR MULCH.
6. PERMANENTLY STABILIZE THE WORK AREA AS SHOWN ON PLANS. TEMPORARILY STABILIZE STREAM CHANNEL WITH ROCK AT THE END OF EACH DAY. CONTRACTOR TO PLACE STRAW MULCH UNDER TEMPORARY MATTING AND ALL NON STREAMBED DISTURBED AREAS.
7. CONSTRUCTION TO BE COORDINATED SO THAT FINAL GRADING IN THE ACCESS ROAD LOCATION IS COMPLETED CONCURRENT WITH THE REMOVAL OF ACCESS ROAD. THE ACCESS ROAD SHALL BE REMOVED CONCURRENT WITH COMPLETION OF THE ADJACENT STREAM CONSTRUCTION.
8. AFTER CONSTRUCTION IS COMPLETE AND AREAS HAVE BEEN STABILIZED, REMOVE EROSION AND SEDIMENT CONTROLS WITH THE APPROVAL OF THE HARFORD COUNTY SCD INSPECTOR AND STABILIZE THE AREAS THAT ARE DISTURBED BY REMOVAL OF SEDIMENT CONTROLS.

BEST MANAGEMENT PRACTICES FOR WORKING IN NON-TIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS

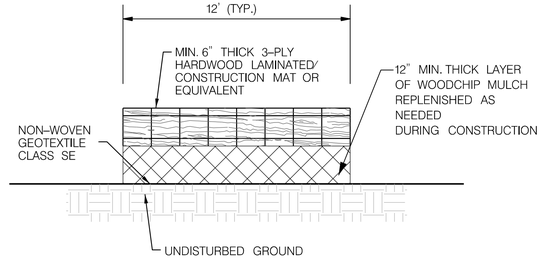
1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
2. PLACE MATERIALS IN A LOCATION AND MANNER THAT DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
3. DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR OTHER DELETERIOUS SUBSTANCE.
4. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
5. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
6. RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN TEMPORARY IMPACTED BY ANY CONSTRUCTION.
7. ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.), OATS (UNIOLA SP.), AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
9. TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM:
   USE III WATERS, IN-STREAM WORK MAY NOT BE CONDUCTED DURING THE PERIOD OCTOBER 1 THROUGH APRIL 30, INCLUSIVE DURING ANY YEAR.
10. STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
11. CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

NOT FOR CONSTRUCTION



TIMBER MATTING FOR STOCKPILES

NOT TO SCALE



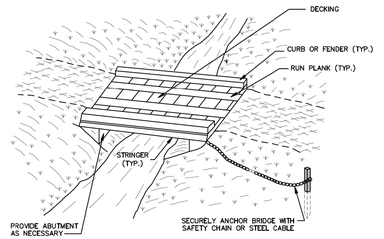
TEMPORARY MULCH ACCESS ROAD WITH TIMBER MATTING

NOT TO SCALE

NOTES:

1. ACCESS ROUTES TO BE VERIFIED BY THE ENGINEER AT PRE-CONSTRUCTION MEETING.
2. REVISIONS TO THE ALIGNMENT THAT MINIMIZE TREE DISTURBANCE ARE ENCOURAGED AND REQUIRE REVIEW AND APPROVAL OF THE ENGINEER.
3. GEOTEXTILE CLASS SE SHALL BE PLACED WITH SEAMS PARALLEL TO THE FLOW OF TRAFFIC. OVERLAP FABRIC BY 18" MIN. AT SEAMS.
4. CONTRACTOR SHALL MAINTAIN TEMPORARY ACCESS ROAD THROUGHOUT CONSTRUCTION PERIOD.
5. MULCH AND GEOTEXTILE PLACEMENT IS NOT REQUIRED IF THE ACCESS ROAD HAS EXISTING GRAVEL COVERAGE.

DETAIL H-4-1 TEMPORARY ACCESS BRIDGE — STANDARD SYMBOL: TB



LOCATION PLAN

NOTE:
TIME OF YEAR RESTRICTIONS DO NOT APPLY TO THE CONSTRUCTION OR REMOVAL OF A TEMPORARY ACCESS BRIDGE UNLESS THERE IS DISTURBANCE TO THE STREAM CHANNEL.

1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

H.17

DETAIL H-4-1 TEMPORARY ACCESS BRIDGE — STANDARD SYMBOL: TB

CONSTRUCTION SPECIFICATIONS

1. CONSTRUCT TEMPORARY BRIDGE STRUCTURE AT OR ABOVE THE BANK ELEVATION TO PREVENT IMPACTS FROM FLOATING MATERIALS AND DEBRIS.
2. PLACE ABUTMENTS PARALLEL TO, AND ON, STABLE BANKS.
3. CONSTRUCT BRIDGE TO SPAN ENTIRE CHANNEL UNLESS OTHERWISE INDICATED ON APPROVED PLAN.
4. USE STRINGERS CONSISTING OF LOGS, SAWN TIMBER, PRESTRESSED CONCRETE BEAMS, METAL BEAMS, OR OTHER APPROVED MATERIALS.
5. SELECT DECKING MATERIALS TO PROVIDE SUFFICIENT STRENGTH TO SUPPORT THE ANTICIPATED LOAD. PLACE ALL DECKING MEMBERS PERPENDICULAR TO THE STRINGERS, BUTT TIGHTLY, AND SECURELY FASTEN. DECKING MATERIALS MUST BE BUTTED TIGHTLY TO PREVENT ANY SOIL MATERIAL TRACKED ONTO THE BRIDGE FROM FALLING INTO THE WATERWAY BELOW.
6. SECURELY FASTEN OPTIONAL RUN PLANKING FOR THE LENGTH OF THE SPAN. PROVIDE A RUN PLANK FOR EACH TRACK OF THE EQUIPMENT WHEELS. ALTHOUGH RUN PLANKS ARE OPTIONAL, THEY MAY BE NECESSARY TO PROPERLY DISTRIBUTE LOADS.
7. INSTALL CURBS THE ENTIRE LENGTH OF THE OUTER SIDES OF THE DECK TO PREVENT SEDIMENT FROM ENTERING THE STREAM CHANNEL.
8. ANCHOR BRIDGE SECURELY AT ONLY ONE END USING STEEL CABLE OR CHAIN. ANCHORING AT ONLY ONE END WILL PREVENT CHANNEL OBSTRUCTION IN THE EVENT THAT FLOODWATERS FLOAT THE BRIDGE. ACCEPTABLE ANCHORS ARE LARGE TREES, LARGE BOULDERS, OR DRIVEN STEEL POSTS. ANCHOR MUST BE SUFFICIENT TO PREVENT THE BRIDGE FROM FLOATING DOWNSTREAM.
9. AREAS DISTURBED DURING BRIDGE INSTALLATION AND\OR REMOVAL MUST NOT BE LEFT UNSTABILIZED OVERNIGHT UNLESS THE RUNOFF IS DIRECTED TO AN APPROVED SEDIMENT CONTROL DEVICE.
10. STABILIZE APPROACH TO BRIDGE AND KEEP FREE OF EROSION. CLEAN SEDIMENT FROM DECKING AND CURBS DAILY BY SCRAPING, SWEEPING, AND/OR VACUUMING. ENSURE THAT DECKING AND CURBS REMAIN TIGHTLY BUTTED WITHOUT GAPS. REMOVE DEBRIS TRAPPED BY BRIDGE. MAINTAIN AREAS ADJACENT TO CROSSING TO CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
11. AFTER THE TEMPORARY CROSSING IS NO LONGER NEEDED, REMOVE IT WITHIN 14 CALENDAR DAYS. IF SUBJECT TO THE USE DESIGNATION CLOSURE, REMOVE AT THE END OF CLOSURE PERIOD. PROTECT STREAM BANKS DURING BRIDGE REMOVAL AND STABILIZE ALL DISTURBED AREAS WITH EROSION CONTROL MATTING. ACCOMPLISH REMOVAL OF THE BRIDGE AND CLEAN UP OF THE AREA WITHOUT CONSTRUCTION EQUIPMENT WORKING IN THE WATERWAY CHANNEL. STORE ALL REMOVED MATERIALS IN AN APPROVED STAGING AREA.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

H.18

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PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. XXXXX. EXPIRATION DATE: XX/XX/XXXX.

PROJECT CONTRACT #59882	Revisions
GP #GRA-002122-2022	
SIGN AND SEAL	

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

SEQUENCE OF CONSTRUCTION

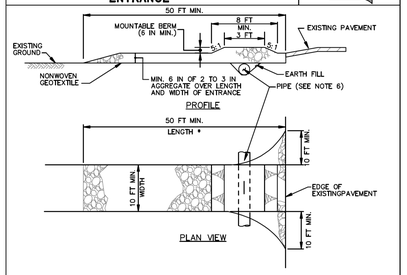
Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO
Drawing No. SC-01 of SC-01

Scale : NOT TO SCALE
Date : FEBRUARY 2025
Sheet No. 32 of 47

ADC MAP: 21 GRID: H10
TAX MAP: 0049 GRID: 0003C
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1"=50'
BY: nhoward -
PLOTTED: 2/25/2025
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DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

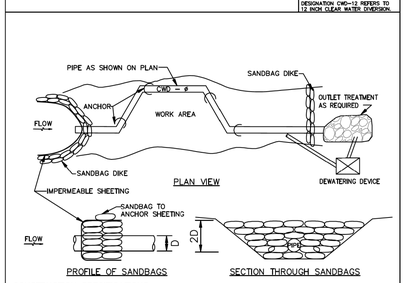
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-6 CLEAR WATER DIVERSION PIPE

STANDARD SYMBOL: CWD - 12

DESIGNATION CWD-12 REFERS TO 12 INCH CLEAR WATER DIVERSION.



CONSTRUCTION SPECIFICATIONS

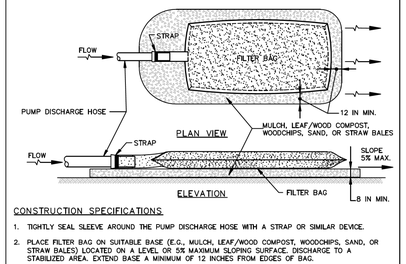
1. FLEXIBLE PIPE IS PREFERRED. HOWEVER, CORRUGATED METAL PIPE OR EQUIVALENT PVC PIPE CAN BE USED. MAKE ALL JOINTS WATERTIGHT.
2. FOR SANDBAGS USE MATERIALS THAT ARE RESISTANT TO ULTRA-VIOLENT RADIATION, TEARING, AND PUNCTURE AND WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL.
3. USE 10 MIL OR THICKER, UV RESISTANT, IMPERMEABLE SHEETING OR OTHER APPROVED MATERIAL THAT IS IMPERMEABLE AND RESISTANT TO PUNTURING AND TEARING.
4. PLACE IMPERMEABLE SHEETING SUCH THAT UPGRADE PORTION OVERLAPS DOWNGRADE PORTION BY A MINIMUM OF 18 INCHES.
5. SET HEIGHT OF SANDBAG DIKE AT TWICE THE PIPE DIAMETER. MAINTAIN HEIGHT ALONG LENGTH OF SANDBAG DIKE. PLACE DOUBLE ROW OF SANDBAGS.
6. AT A MINIMUM, SECURELY ANCHOR DIVERSION PIPE AT EACH DOWNGRADE JOINT.
7. SET OUTLET END OF DIVERSION PIPE LOWER THAN INLET END.
8. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
9. DEWATER WORK AREA USING AN APPROVED EROSION AND SEDIMENT CONTROL PRACTICE AS SPECIFIED ON APPROVED PLAN.
10. KEEP POINT OF DISCHARGE FREE OF EROSION. MAINTAIN WATER TIGHT CONNECTIONS AND POSITIVE DRAINAGE. REPLACE SANDBAGS AND IMPERMEABLE SHEETING IF TORN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL F-4 FILTER BAG

STANDARD SYMBOL: ☒FB



CONSTRUCTION SPECIFICATIONS

1. TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
2. PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.
3. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
4. REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
5. USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:

GRAB TENSILE	250 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4833
FLOW RATE	70 GAL/MIN/FT²	ASTM D-4491
PERMITTIVITY (SEC⁻¹)	1.2 SEC⁻¹	ASTM D-4491
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355
APPARENT OPENING SIZE (AOS)	0.15–0.18 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632

6. REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

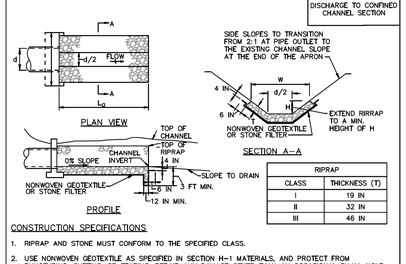
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-4-1-B ROCK OUTLET PROTECTION II

STANDARD SYMBOL: ROPII

DISCHARGE TO CONFINED CHANNEL SECTION



RIPRAP	
CLASS	THICKNESS (T)
I	19 IN
II	32 IN
III	46 IN

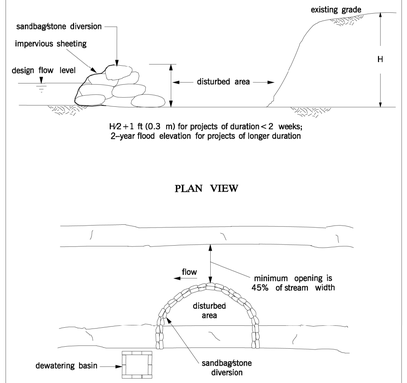
CONSTRUCTION SPECIFICATIONS

1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE EITHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (⅜ TO 1½ INCH STONE FOR 6 INCH MINIMUM DEPTH), AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIPRAP.
5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE STONE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
7. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
8. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

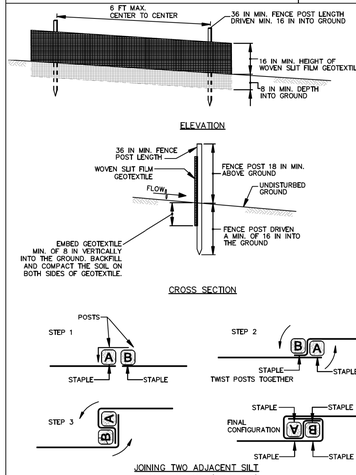
Maryland's Guidelines To Waterway Construction
DETAIL 1.5: SANDBAG/STONE DIVERSION



TEMPORARY INSTREAM CONSTRUCTION MEASURES	*REVISED NOVEMBER 2000 PAGE 1.5 - 3*	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF

CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1¾ X 1¾ ± 1/8 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

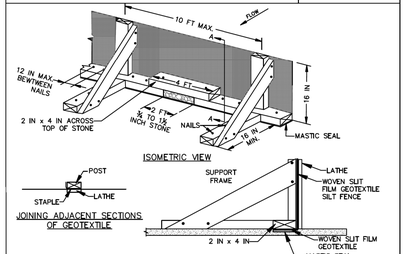
2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-2 SILT FENCE ON PAVEMENT

STANDARD SYMBOL: SFOP



CONSTRUCTION SPECIFICATIONS

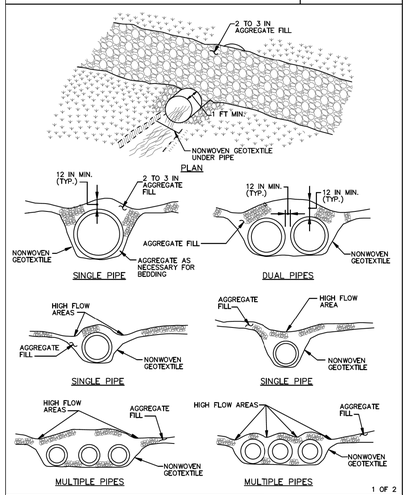
1. USE NOMINAL 2 INCH X 4 INCH LUMBER.
2. USE WOVEN SLIT FILM GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
3. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
4. SPACE UPRIGHT SUPPORTS NO MORE THAN 10 FEET APART.
5. PROVIDE A TWO FOOT OPENING BETWEEN EVERY SET OF SUPPORTS AND PLACE STONE IN THE OPENING OVER GEOTEXTILE.
6. KEEP SILT FENCE TAUT AND SECURELY STAPLE TO THE UPSLOPE SIDE OF UPRIGHT SUPPORTS. EXTEND GEOTEXTILE UNDER 2x4.
7. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, FOLD, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL. ATTACH LATHE.
8. PROVIDE A MASTIC SEAL BETWEEN PAVEMENT, GEOTEXTILE, AND 2x4 TO PREVENT SEDIMENT-LADEN WATER FROM ESCAPING BENEATH SILT FENCE INSTALLATION.
9. SECURE BOARDS TO PAVEMENT WITH 40D 5 INCH MINIMUM LENGTH NAILS.
10. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. MAINTAIN WATER TIGHT SEAL ALONG BOTTOM. REPLACE STONE IF DISPLACED.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL H-4-2 TEMPORARY ACCESS CULVERT

STANDARD SYMBOL:



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL H-4-2 TEMPORARY ACCESS CULVERT

STANDARD SYMBOL:

CONSTRUCTION SPECIFICATIONS

1. CONSTRUCTION OR REMOVAL OF A TEMPORARY ACCESS CULVERT WILL NOT BE PERMITTED DURING THE FOLLOWING PERIODS:

USE I AND IP	MARCH 1 – JUNE 15
USE II	JUNE 1 – SEPTEMBER 30 AND DECEMBER 16 – MARCH 14
USE III AND IIIP	OCTOBER 1 – APRIL 30
USE IV	MARCH 1 – MAY 31
SAV (ALL FLOWING STREAMS)	APRIL 15 – OCTOBER 15
*SUBMERGED AQUATIC VEGETATION	

2. EXTEND THE CULVERT(S) A MINIMUM OF ONE FOOT BEYOND THE UPSTREAM AND DOWNSTREAM TOE OF THE AGGREGATE PLACED AROUND THE CULVERT.
3. PLACE NONWOVEN GEOTEXTILE ON THE STREAM BED AND STREAM BANKS PRIOR TO PLACEMENT OF THE PIPE CULVERT(S) AND AGGREGATE. COVER THE STREAM BED WITH THE GEOTEXTILE AND EXTEND IT A MINIMUM SIX INCHES AND A MAXIMUM OF ONE FOOT BEYOND THE END OF THE CULVERT AND BEDDING MATERIAL. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS. GEOTEXTILE REDUCES SETTLEMENT AND IMPROVES CROSSING STABILITY.
4. PLACE CULVERT(S) ON THE NATURAL STREAM BED GRADE TO MINIMIZE INTERFERENCE WITH FISH PASSAGE.
5. COVER THE CULVERT WITH A MINIMUM OF ONE FOOT OF WASHED AGGREGATE. FOR MULTIPLE CULVERTS PROVIDE AT LEAST 12 INCHES OF COMPACTED AGGREGATE FILL BETWEEN CULVERTS.
6. STABILIZE ALL AREAS DISTURBED DURING CULVERT INSTALLATION WITHIN 24 HOURS OF THE DISTURBANCE IN ACCORDANCE WITH STANDARDS FOR PERMANENT STABILIZATION, SECTION B-4-5, OR TEMPORARY STABILIZATION, SECTION B-4-4, AS APPLICABLE.
7. STABILIZE APPROACH TO CROSSING AND KEEP FREE OF EROSION. REPLACE DISPLACED STONE, AND MAINTAIN HIGH FLOW AREAS. REMOVE DEBRIS TRAPPED BY CULVERT. REPLACE DAMAGED PIPE(S). MAINTAIN AREAS ADJACENT TO CROSSING TO CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
8. AFTER THE TEMPORARY CROSSING IS NO LONGER NEEDED, REMOVE IT WITHIN 14 CALENDAR DAYS. IF SUBJECT TO THE USE DESIGNATION CLOSURE, REMOVE AT THE END OF CLOSURE PERIOD. PROTECT STREAM BANKS DURING CULVERT REMOVAL AND STABILIZE ALL DISTURBED AREAS WITH EROSION CONTROL MATTING. ACCOMPLISH REMOVAL OF THE CULVERT AND CLEAN UP OF THE AREA WITHOUT CONSTRUCTION EQUIPMENT WORKING IN THE WATERWAY CHANNEL. STORE ALL REMOVED MATERIALS IN AN APPROVED STAGING AREA.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.LICENSE NO. XXXXX. EXPIRATION DATE: XX/XX/XXXX.

PROJECT CONTRACT #59882	Revisions
GP #GRA-002122-2022	
SIGN AND SEAL	

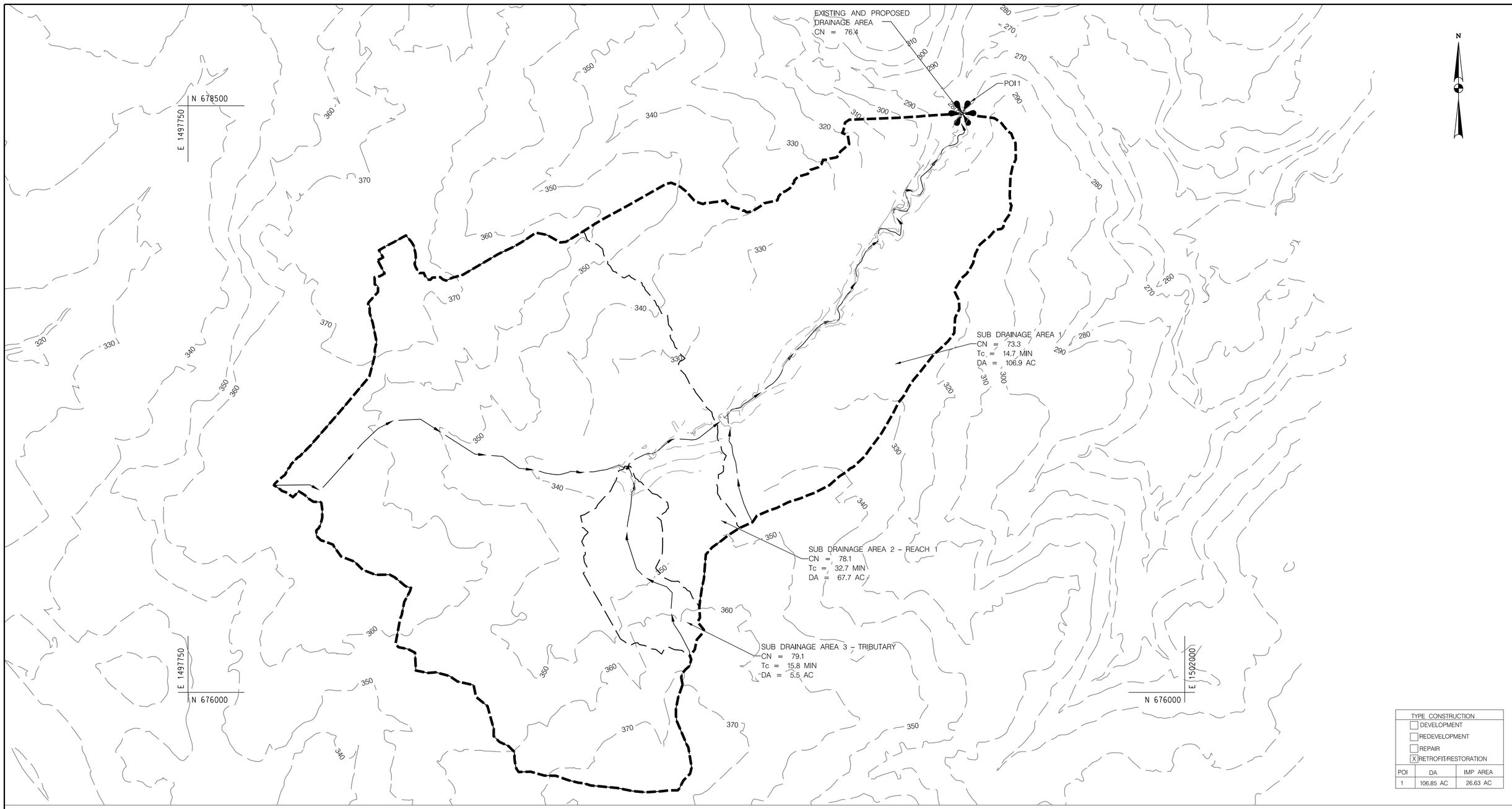
HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

EROSION AND SEDIMENT CONTROL DETAILS

Drawn By : NAH/MBR	Scale : NOT TO SCALE
Designed By : NAH	Date : FEBRUARY 2025
Reviewed By : RMO	
Drawing No. ED-01 of ED-01	Sheet No. 33 of 47

PLOTTED: 2/25/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\33_pES-D001-Woodland.dgn
BY: nhoward –
TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:



TYPE CONSTRUCTION		
☐ DEVELOPMENT		
☐ REDEVELOPMENT		
☐ REPAIR		
☒ RETROFIT/RESTORATION		
POI	DA	IMP AREA
1	106.85 AC	26.63 AC

LEGEND

- DRAINAGE AREA
- SUB DRAINAGE AREA
- Tc PATH
- MAJOR CONTOUR
- BUILDING
- ROAD

200' 0 200' 400'
SCALE: 1" = 200'

NOT FOR CONSTRUCTION

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PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

DRAINAGE AREA MAP

Drawn By : NAH/MBR
Designed By : NAH
Reviewed By : RMO

Scale : 1" = 200'
Date : FEBRUARY 2025

Drawing No. DA-01 of DA-01

Sheet No. 34 of 47

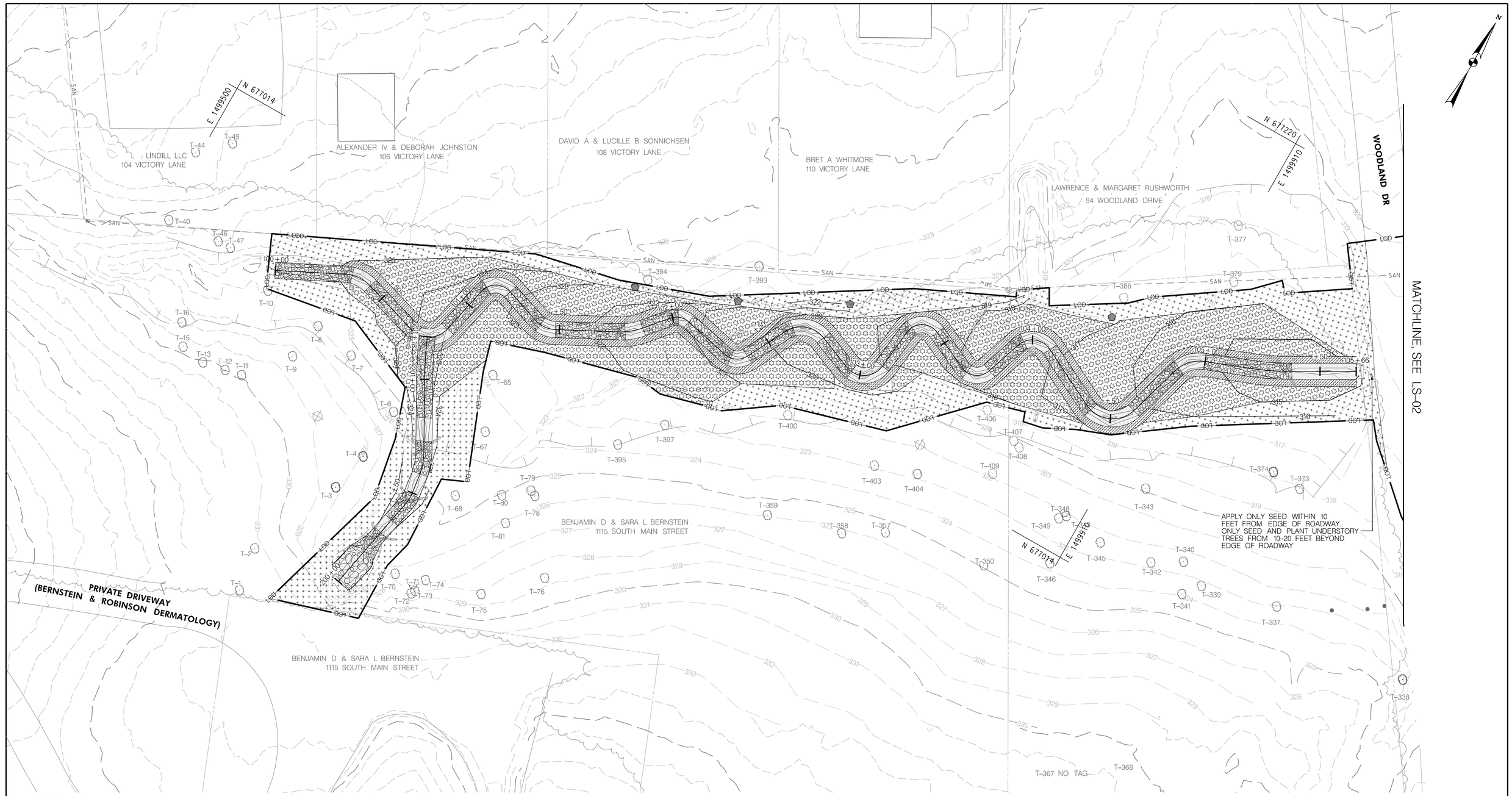
TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10

HCG BILLING ID No.:

HCG DWG ID No.:

BY: mroberts -

PLOTTED: 2/10/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\35_pDA-0001-Woodland.dgn



TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10

HCG BILLING ID No.:

HCG DWG ID No.:

BY: ehaight –

LEGEND

- FLOODPLAIN FOREST PLANTING
- RIPARIAN BUFFER FOREST PLANTING
- WET MEADOW SEEDING ZONE
- SURVEYED TREE
- PROPOSED RIPRAP
- LIVE STAKES
- LOD — LIMIT OF DISTURBANCE (LOD)
- LOW — LIMIT OF WORK (LOW)
- SAN — SANITARY SEWER LINE
- LOG VANE
- STONE TOE
- ROOT WAD
- MODELED 100-YR FLOODPLAIN
- TREE & SHRUB CLUMPS
- PROPOSED CHANNEL
- WOODY DEBRIS

NOTES:

1. SEE SHEET LS-05 FOR PLANTING SCHEDULES AND DETAILS.
2. PLACEMENT AND SPACING OF PLANTS SHALL BE FIELD ADJUSTED TO ACCOMODATE PLACED WOODY DEBRIS, LOG VANES, AND ROOT WADS.
3. TREES AND SHRUBS SHALL NOT BE PLANTED WITHIN 10 FEET OF EITHER SIDE OF EXISTING SANITARY SEWER LINE.
4. TREES SHALL NOT BE PLANTED WITHIN 10 FEET OF THE EDGE OF TRAVEL LANES. ONLY UNDERSTORY TREES SHALL BE PLANTED FROM 10–20 FEET BEYOND EDGE OF ROADWAY.
5. TREES WITH A MATURE HEIGHT OF 25' OR GREATER SHALL NOT BE PLANTED WITHIN 25' OF THE CENTER LINE OF OVERHEAD UTILITIES.
6. REQUEST A MISS UTILITY STAKEOUT AND POSSESS A VALID MISS UTILITY CLEARANCE TICKET NUMBER PRIOR TO PLANTING. 1–800–257–7777
7. ONCE THE TEMPORARY ACCESS ROAD IS REMOVED, NO EQUIPMENT OR MOTORIZED VEHICLES MAY ACCESS THE SITE. LANDSCAPING INSTALLATION SHALL BE COMPLETED BY HAND.

20' 0 20' 40'
SCALE: 1" = 20'

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HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

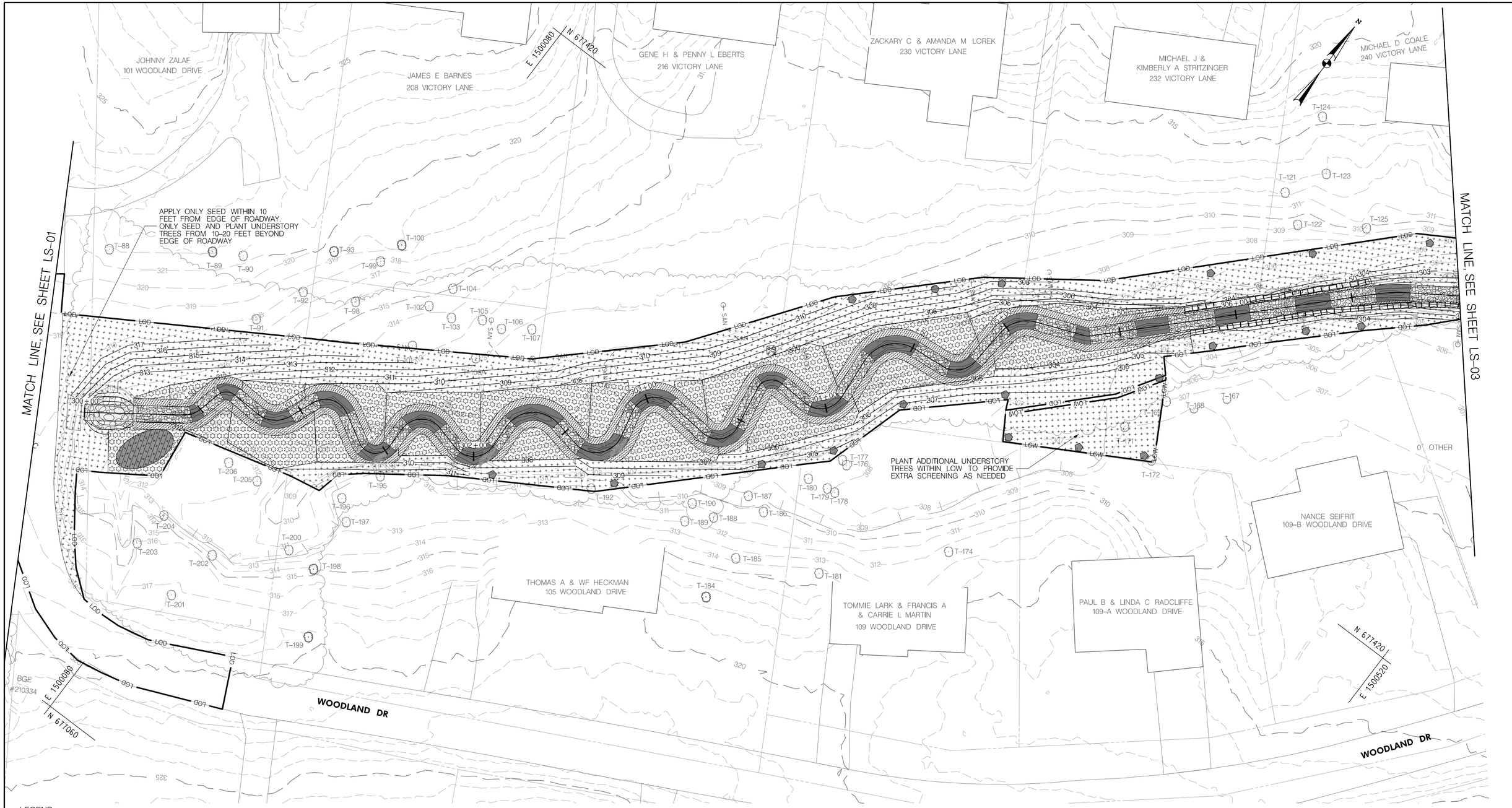
LANDSCAPE PLAN

Drawn By : EH/HA
Designed By : AJN/EH/HA
Reviewed By : KDG
Drawing No. LS-01 of LS-05

Scale : 1" = 20'
Date : FEBRUARY 2025
Sheet No. 35 of 47

SCALE: 1" = 20'

PLOTTED: 2/28/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\35_pLS-P001-Woodland.dgn



LEGEND

- FLOODPLAIN FOREST PLANTING
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- WET MEADOW SEEDING ZONE
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NOTES:

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PROJECT CONTRACT #59882

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HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

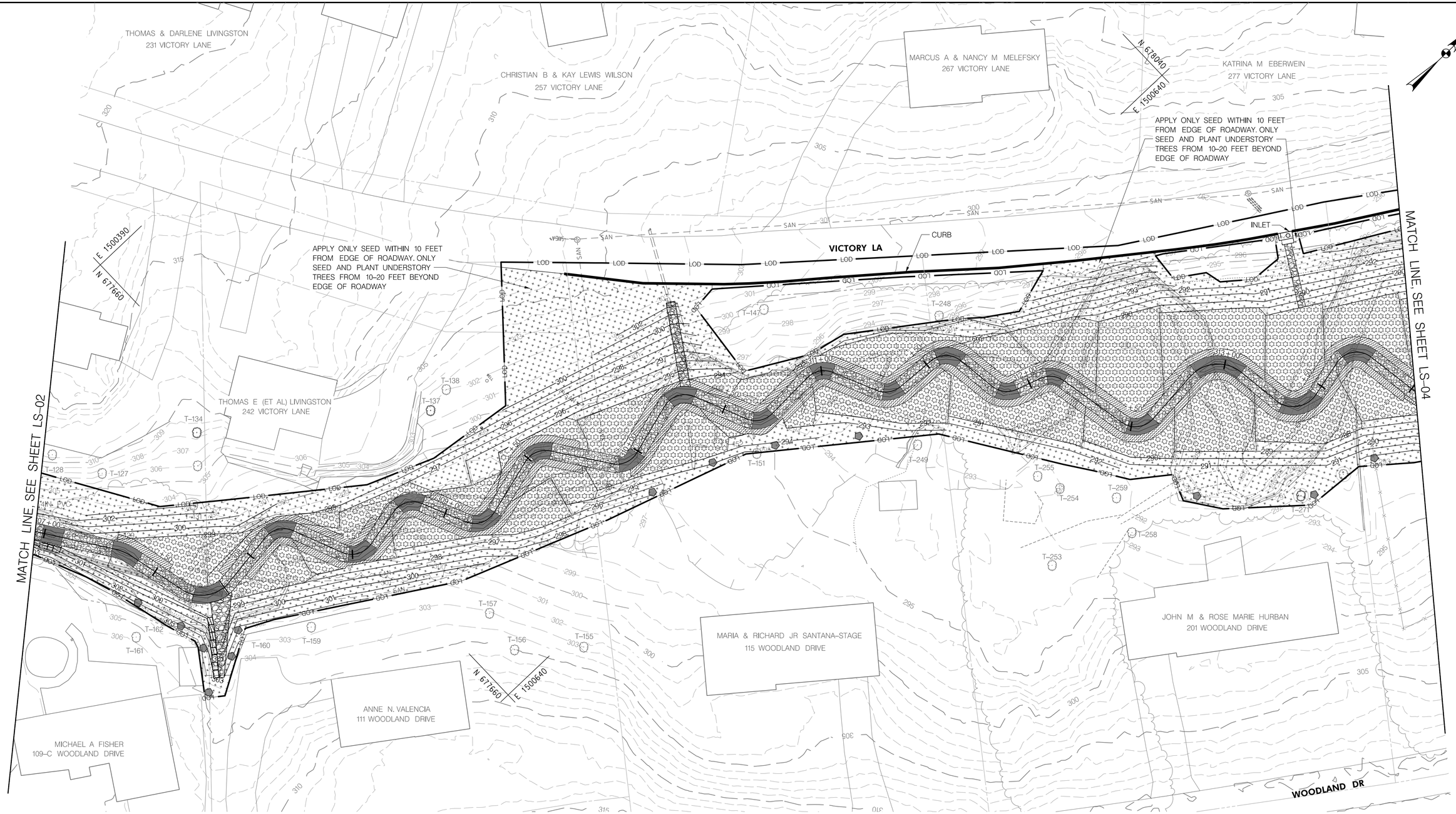
LANDSCAPE PLAN

Drawn By : EHHA
Designed By : AJNEHHA
Reviewed By : KDG
Drawing No. LS-02 of LS-05

Scale : 1" =20'
Date : FEBRUARY 2025
Sheet No. 36 of 47

TAX MAP: 0049 GRID: 0003C
ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1"=20'
BY: ehaight –

PLOTTED: 2/28/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\36_pLS-P002-Woodland.dgn



LEGEND

- FLOODPLAIN FOREST PLANTING
- RIPARIAN BUFFER FOREST PLANTING
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- SURVEYED TREE
- PROPOSED RIPRAP
- LIVE STAKES
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- TREE & SHRUB CLUMPS
- PROPOSED CHANNEL
- WOODY DEBRIS

NOTES:

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7. ONCE THE TEMPORARY ACCESS ROAD IS REMOVED, NO EQUIPMENT OR MOTORIZED VEHICLES MAY ACCESS THE SITE. LANDSCAPING INSTALLATION SHALL BE COMPLETED BY HAND.

20' 0 20' 40'
SCALE: 1" = 20'

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PROJECT CONTRACT #59882

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HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

LANDSCAPE PLAN

Drawn By : EH/HA
Designed By : AJN/EH/HA
Reviewed By : KDG

Scale : 1" = 20'
Date : FEBRUARY 2025

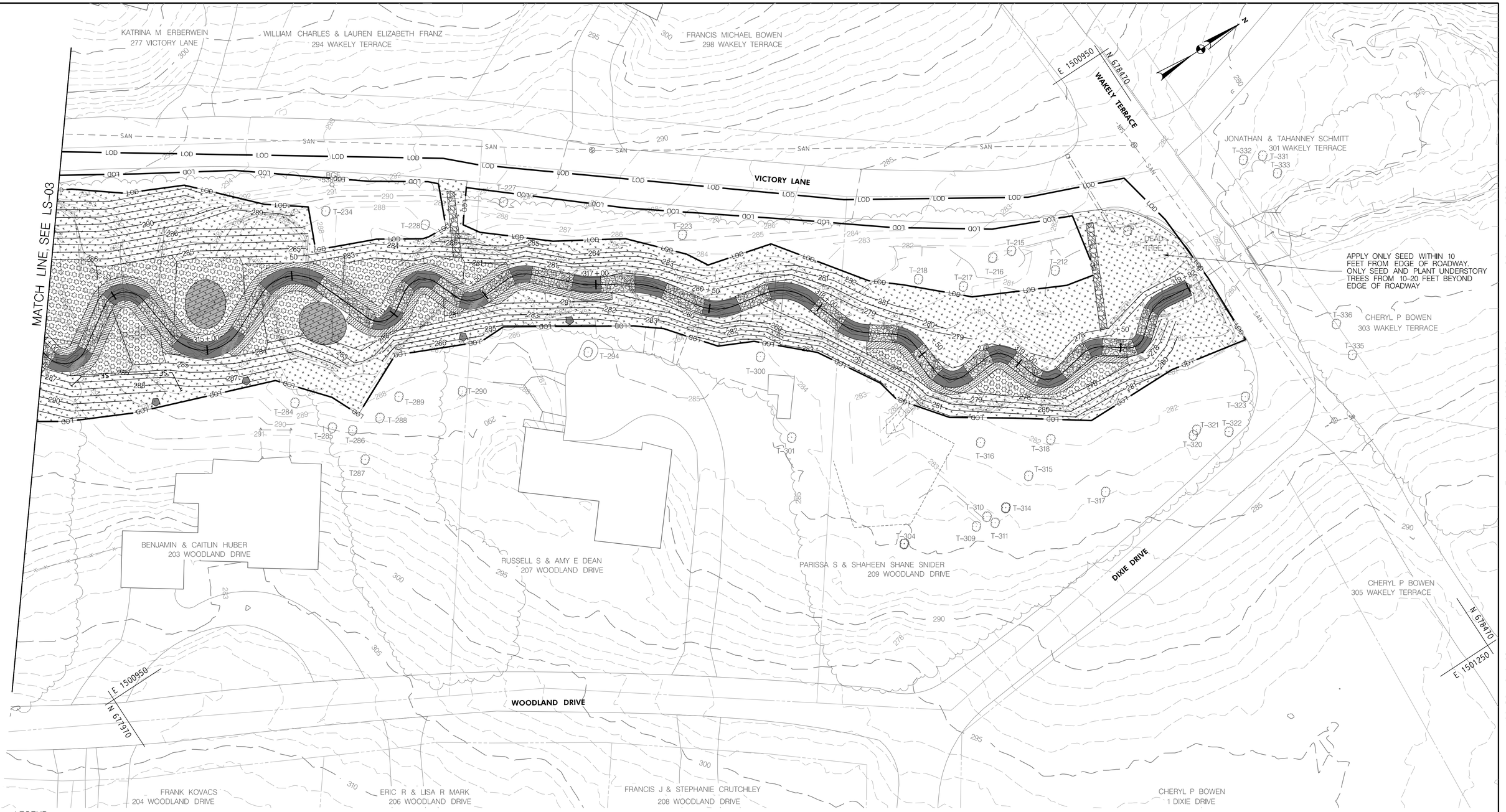
Drawing No. LS-03 of LS-05

Sheet No. 37 of 47

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:

BY: ehaight -

PLOTTED: 2/28/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\37_pLS-P003-Woodland.dgn



LEGEND

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- RIPARIAN BUFFER FOREST PLANTING
- WET MEADOW SEEDING ZONE
- SURVEYED TREE
- PROPOSED RIPRAP
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- MODELED 100-YR FLOODPLAIN
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- PROPOSED CHANNEL
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NOTES:

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5. TREES WITH A MATURE HEIGHT OF 25' OR GREATER SHALL NOT BE PLANTED WITHIN 25' OF THE CENTER LINE OF OVERHEAD UTILITIES.
6. REQUEST A MISS UTILITY STAKEOUT AND POSSESS A VALID MISS UTILITY CLEARANCE TICKET NUMBER PRIOR TO PLANTING. 1-800-257-7777
7. ONCE THE TEMPORARY ACCESS ROAD IS REMOVED, NO EQUIPMENT OR MOTORIZED VEHICLES MAY ACCESS THE SITE. LANDSCAPING INSTALLATION SHALL BE COMPLETED BY HAND.

20' 0 20' 40'
SCALE: 1" = 20'

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PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

LANDSCAPE PLAN

Drawn By : EHHA
Designed By : AJNEHHA
Reviewed By : KDG

Scale : 1" = 20'
Date : FEBRUARY 2025

Drawing No. LS-04 of LS-05

Sheet No. 38 of 47

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:

BY: ehaight -

PLOTTED: 2/28/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\38_pLS-P004-Woodland.dgn

RIPARIAN BUFFER FOREST PLANTING SCHEDULE

ACRES:	1.51	SQUARE FEET: 65,764				
Species Quantity	**Vegetation Strata/ Species Name**	**Common Name**	**Wetland Indicator Status**	**Size**	**Type**	**Placement**
	TREES					
	Canopy Trees					
30	*Acer rubrum*	Red maple	FAC	3/4" cal.	#7 container	Naturalized at 15' O.C.
30	*Nyssa sylvatica*	Blackgum	FAC	3/4" cal.	#7 container	Naturalized at 15' O.C.
30	*Quercus falcata*	Southern red oak	FACU	3/4" cal.	#7 container	Naturalized at 15' O.C.
31	*Diospyros virginiana*	Persimmon	FAC	3/4" cal.	#7 container	Naturalized at 15' O.C.
30	*Liquidambar styraciflua*	Sweetgum	FAC	3/4" cal.	#7 container	Naturalized at 15' O.C.
30	*Quercus alba*	White oak	FACU	3/4" cal.	#7 container	Naturalized at 15' O.C.
30	*Populus deltoides*	Eastern cottonwood	FAC	3/4" cal.	#7 container	Naturalized at 15' O.C.
	Understory Trees					
18	*Cercis canadensis*	Eastern redbud	FACU	3/4" cal.	#7 container - Single-stem	Naturalized at 12' O.C.
18	*Amelanchier canadensis*	Canadian Serviceberry	FAC	3/4" cal.	#7 container - Single-stem	Naturalized at 12' O.C.
15	*Chionanthus virginicus*	White Fringetree	FAC	3/4" cal.	#7 container - Single-stem	Naturalized at 12' O.C.
	Trees Within Tree and Shrub Clumps					
15	*Cercis canadensis*	Eastern redbud	FACU	3/4" cal.	#5 container	Within tree & shrub clump
15	*Pinus taeda*	Loblolly pine	FAC	3/4" cal.	#5 container	Within tree & shrub clump
10	*Carpinus caroliniana*	American hornbeam	FAC	3/4" cal.	#5 container	Within tree & shrub clump
302	**=total**					
	SHRUBS*					
40	*Ilex glabra*	Inkberry	FAC	2' ht.	#3 container	Per tree & shrub clump detail
40	*Morella pensylvanica*	Northern bayberry	FAC	2' ht.	#3 container	Per tree & shrub clump detail
40	*Viburnum acerifolium*	Mapleleaf viburnum	FAC	2' ht.	#3 container	Per tree & shrub clump detail
40	*Lindera benzoin*	Spicebush	FAC	2' ht.	#3 container	Per tree & shrub clump detail
40	*Viburnum dentatum*	Arrowwood	FAC	2' ht.	#3 container	Per tree & shrub clump detail
200	**=total**					
LOWLAND MEADOW ESTABLISHMENT (SY):		**7,308**	Refer to SHA Section 707 - Lowland Meadow Establishment			

*All shrubs shall be planted within Tree and Shrub Clumps. Shrubs shall be planted with 5 of the same species within a clump. Center tree within clump will be selected as indicated. Follow spacing requirements as defined in the Tree and Shrub Clump planting detail

FLOODPLAIN FOREST PLANTING SCHEDULE

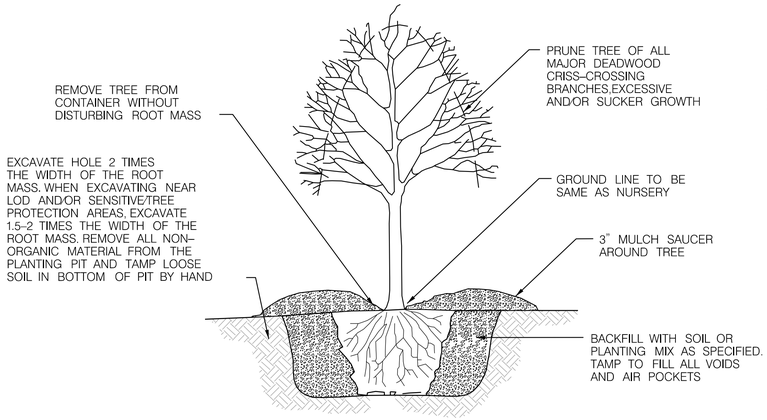
ACRES:	0.74	SQUARE FEET: 32,429				
Species Quantity	**Vegetation Strata/ Species Name**	**Common Name**	**Wetland Indicator Status**	**Size**	**Type**	**Placement**
	TREES					
22	*Acer rubrum*	Red maple	FAC	3/4" cal.	#7 container	Naturalized at 15' O.C.
23	*Betula nigra*	River birch	FACW	3/4" cal.	#7 container	Naturalized at 15' O.C.
22	*Magnolia virginiana*	Sweetbay magnolia	FACW	3/4" cal.	#7 container	Naturalized at 15' O.C.
22	*Platanus occidentalis*	American sycamore	FACW	3/4" cal.	#7 container	Naturalized at 15' O.C.
22	*Quercus bicolor*	Swamp white oak	FACW	3/4" cal.	#7 container	Naturalized at 15' O.C.
23	*Quercus palustris*	Pin oak	FACW	3/4" cal.	#7 container	Naturalized at 15' O.C.
15	*Ulmus americana 'Princeton'*	American elm	FACW	3/4" cal.	#7 container	Naturalized at 15' O.C.
149	**=total**					
	SHRUBS					
15	*Cornus amomum*	Silky dogwood	FACW	2' ht.	#3 container	Cluster in groups of 3 or 5, 6' OC
15	*Ilex verticillata*	Winterberry	FACW	2' ht.	#3 container	Cluster in groups of 3 or 5, 6' OC
12	*Clethra alnifolia*	Sweet pepperbush	FACW	2' ht.	#3 container	Cluster in groups of 3 or 5, 6' OC
11	*Itea virginica*	Virginia sweetspire	FACW	2' ht.	#3 container	Cluster in groups of 3 or 5, 6' OC
11	*Vaccinium corymbosum*	Highbush blueberry	FACW	2' ht.	#3 container	Cluster in groups of 3 or 5, 6' OC
11	*Viburnum nudum*	Possumhaw	FACW	2' ht.	#3 container	Cluster in groups of 3 or 5, 6' OC
75	**=total**					
WET MEADOW ESTABLISHMENT (SY):		**3,604**	Refer to SHA Section 707 - Wet Meadow Establishment			

LIVE STAKE PLANTING SCHEDULE

ACRES:	0.27	SQUARE FEET: 11,700				
Species Quantity	**Vegetation Strata/ Species Name**	**Common Name**	**Wetland Indicator Status**	**Size**	**Type**	**Placement**
	TREES					
298	*Cornus sericea*	Red osier dogwood	FACW	3' long	Live stake	Naturalized at 3' O.C.
598	*Salix nigra*	Black willow	OBL	3' long	Live stake	Naturalized at 3' O.C.
598	*Salix sericea*	Silky willow	OBL	3' long	Live stake	Naturalized at 3' O.C.
1,494	**=total**					
WET MEADOW ESTABLISHMENT (SY):		**1,300**				

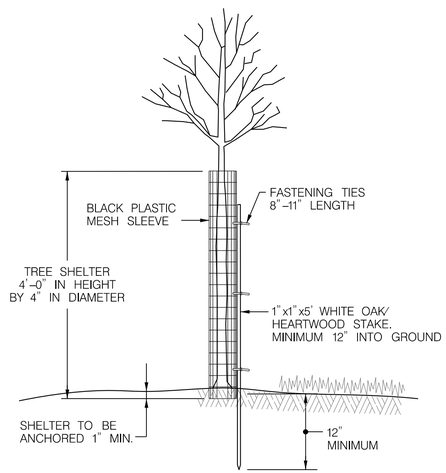
SEEDING SCHEDULE

Seed Mix	Area (SY)
Total Wet Meadow Establishment	4,999
Total Lowland Meadow Establishment	7,308



TREE/SHRUB PLANTING – CONTAINER GROWN

NOT TO SCALE

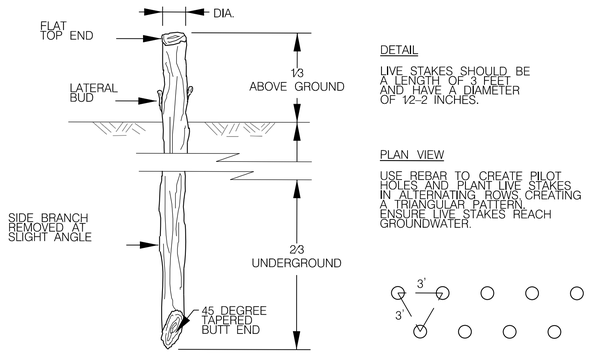


NOTES:

1. TREE SLEEVES SHALL ONLY BE USED WITHIN THE RIPARIAN BUFFER FOREST PLANTING AREAS.
2. REFER TO DEER PROTECTION SPECIFICATION FOR ADDITIONAL INFORMATION.

DEER PROTECTION – TREE SLEEVES

NOT TO SCALE



SECTION VIEW

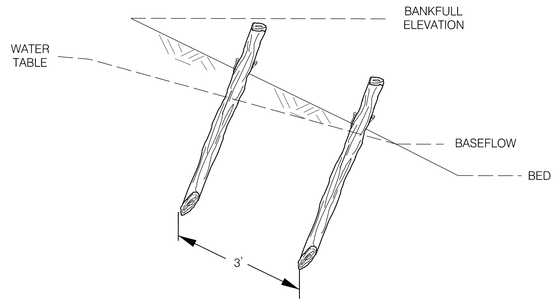
LIVE STAKES SHALL BE SPACED 3 FEET APART AND INSTALLED AT A 90 DEGREE ANGLE TO THE GROUND SURFACE.

DETAIL

LIVE STAKES SHOULD BE A LENGTH OF 3 FEET AND HAVE A DIAMETER OF 1/2-2 INCHES.

PLAN VIEW

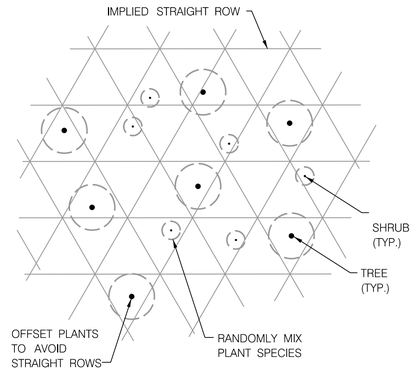
USE REBAR TO CREATE PILOT HOLES AND PLANT LIVE STAKES IN ALTERNATING ROWS, CREATING A TRIANGULAR PATTERN. ENSURE LIVE STAKES REACH GROUNDWATER.



LIVE STAKES DETAIL

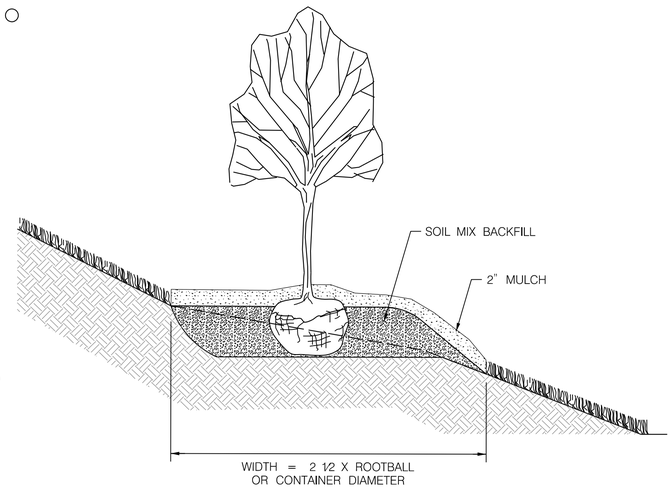
NOT TO SCALE

Source: Adapted from USDA-SCS (1994)



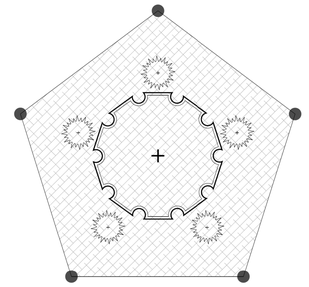
NATURALIZED PLANT SPACING

NOT TO SCALE



PLANTING ON SLOPE

NOT TO SCALE



TREE AND SHRUB CLUMP DETAIL

NOT TO SCALE

LEGEND



NOTES:

1. FENCING SHALL BE 4' HIGH, 14 GAUGE WELDED WIRE FENCE SECURED TO 6' T-POSTS DRIVEN 2' INTO THE GROUND.
2. ALL SHRUBS SHALL BE PLACED 2' FROM THE CENTRAL TREE AND 3' APART FROM THE ADJACENT SHRUBS. THE FENCE SHALL BE 2' OFF THE EDGE OF ALL PLANTINGS.
3. ALL FIVE SHRUBS WITHIN A CLUMB SHALL BE THE SAME SPECIES. THE TREE SHALL BE CHOSEN AT RANDOM FROM THE PLANTING SCHEDULE AS INDICATED.

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PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

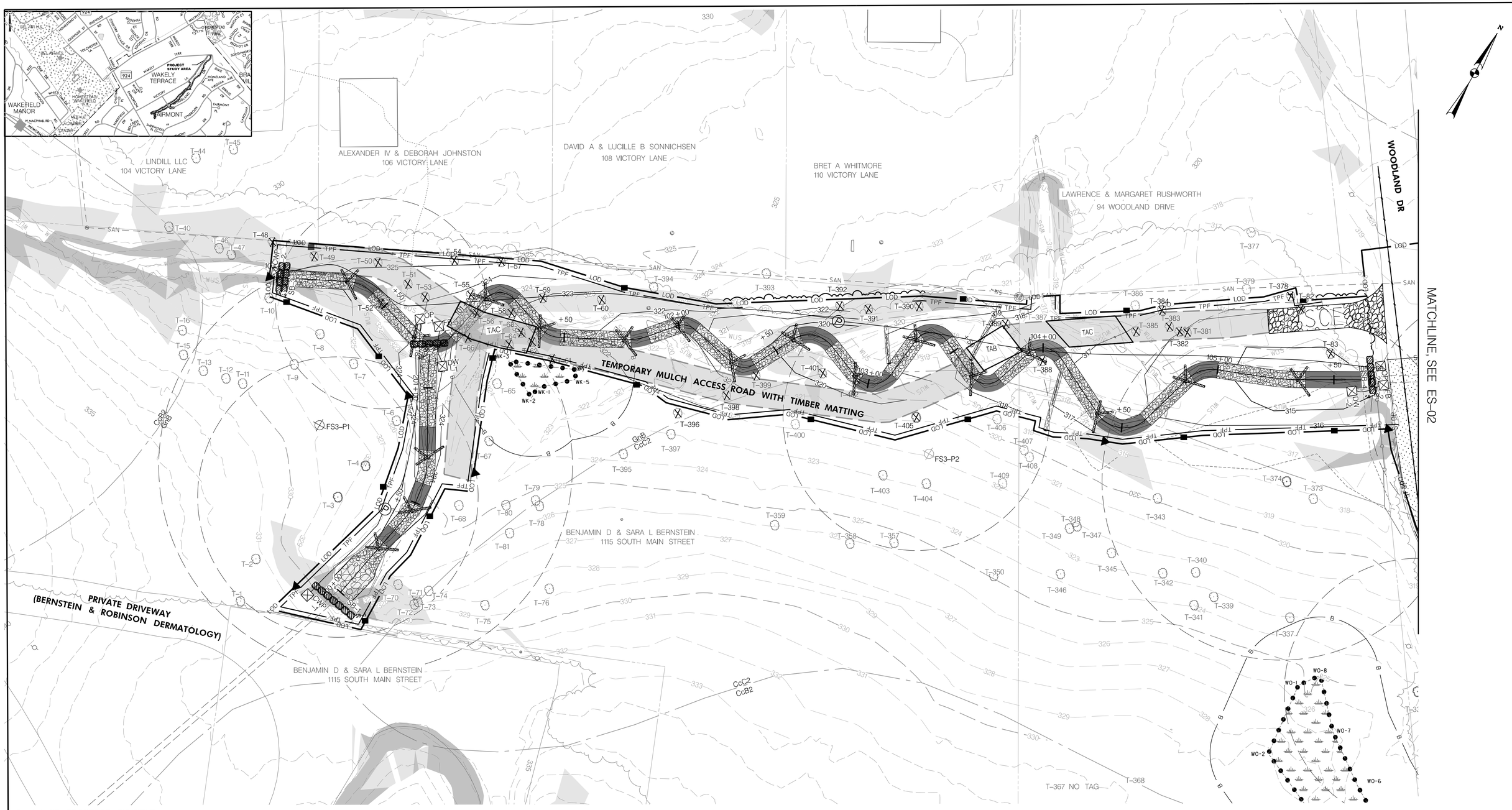
LANDSCAPE TABLES AND DETAILS

Drawn By : EH/HA
Designed By : AJN/EH/HA
Reviewed By : KDG
Drawing No. LS-05 of LS-05

Scale : NOT TO SCALE
Date : FEBRUARY 2025
Sheet No. 39 of 47

ADC MAP: 21 GRID: H10
TAX MAP: 0049 GRID: 0003C
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1 inch
BY: ehaight –

PLOTTED: 2/28/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\39_pLS-P005-Woodland.dgn



ADC MAP: 21 GRID: H10

TAX MAP: 0049 GRID: 0003C

HCG BILLING ID No.:

HCG DWG ID No.:

BY: ehaight

SCALE: 1"=50'

STANDARD PROPOSED SYMBOLS

- LOD — LIMIT OF DISTURBANCE
- LOW — LIMIT OF WORK
- ROW/PROPERTY BOUNDARY
- STOCKPILE AREA
- TEMPORARY ACCESS ROAD
- SF OP — SILT FENCE ON PAVEMENT
- TAB/C — TEMPORARY BRIDGE/CULVERT
- ROOT WAD
- STONE TOE
- FLOODPLAIN LOG
- LOG VANE
- WOODY DEBRIS
- PROPOSED CHANNEL
- STOCKPILE AREA WITH TIMBER MATTING
- WLS — WATERS OF THE US
- RIFFLE GRADE CONTROL MIX
- RIPRAP
- INDIVIDUAL TREE
- INDIVIDUAL TREE TO BE REMOVED
- TREE PROTECTION PLANKING
- FOREST CONSERVATION SIGN
- SPECIMEN TREE PROTECTION SIGN
- SPECIMEN TREE WITH CRITICAL ROOT ZONE
- SCE — STABILIZED CONSTRUCTION ENTRANCE (SCE)
- EXISTING FOREST LINE
- PROPOSED FOREST LINE
- FS2 — FOREST STAND LABEL
- FS2-P1 — FOREST STAND PLOT POINT
- FOREST STAND BREAK LINE
- SOIL BOUNDARY
- WETLAND BOUNDARY
- B — 25 FT WETLAND BUFFER
- TPF — TREE PROTECTION FENCE
- STEEP SLOPES 15-25%
- STEEP SLOPES >25%
- SF — SILT FENCE

TREE PROTECTION NOTES:

1. ROOT PRUNING SHALL BE CONDUCTED ALONG TPF AND ALONG EDGE OF GRADING ADJACENT TO TREES AS DIRECTED BY MD LTE.
2. SEE FCN-01 TO FCN-04 FOR TREE INVENTORY TABLES, TREE PROTECTION NOTES, SEQUENCE OF TREE CONSERVATION PROCEDURES, AND TREE PROTECTION DETAILS.
3. THE NET TRACT AREA IS CONSIDERED THE LIMIT OF DISTURBANCE (LOD) AND TOTALS 3.26 AC.

Alex Nussbaum 02/28/2025

MARYLAND DNR QUALIFIED PROFESSIONAL — DATE
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PROJECT CONTRACT #59882	Revisions
GP #GRA-002122-2022	
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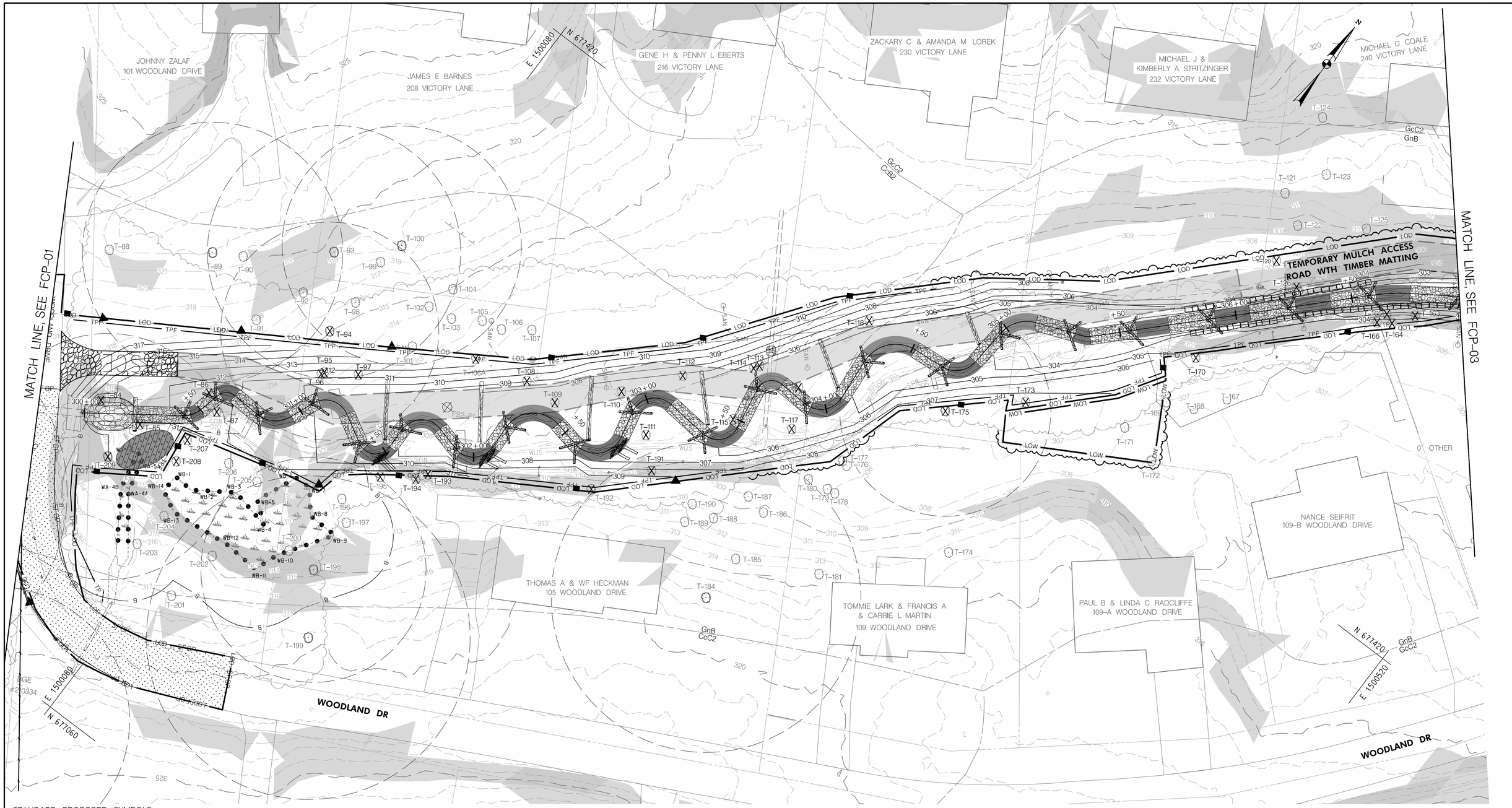
HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

FOREST CONSERVATION PLAN

Drawn By : EH/HA	Scale : 1" = 20'
Designed By : AJN/EH/HA	Date : FEBRUARY 2025
Reviewed By : KDG	
Drawing No. FCP-01 of FCP-04	Sheet No. 40 of 47

PLOTTED: 2/28/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\40_FCP-P001-Woodland.dgn



STANDARD PROPOSED SYMBOLS

- LOD — LIMIT OF DISTURBANCE
- LOW — LIMIT OF WORK
- ROW/PROPERTY BOUNDARY
- STOCKPILE AREA
- TEMPORARY ACCESS ROAD
- SFOP — SILT FENCE ON PAVEMENT
- TABC — TEMPORARY BRIDGE/CULVERT
- ROOT WAD
- STONE TOE
- FLOODPLAIN LOG
- LOG VANE
- WOODY DEBRIS
- PROPOSED CHANNEL
- STOCKPILE AREA WITH TIMBER MATTING
- WUS — WATERS OF THE US
- RIFFLE GRADE CONTROL MIX
- RIPRAP
- INDIVIDUAL TREE
- INDIVIDUAL TREE TO BE REMOVED
- TREE PROTECTION PLANKING
- FOREST CONSERVATION SIGN
- SPECIMEN TREE PROTECTION SIGN
- SPECIMEN TREE WITH CRITICAL ROOT ZONE
- SCE — STABILIZED CONSTRUCTION ENTRANCE (SCE)
- EXISTING FOREST LINE
- PROPOSED FOREST LINE
- FS2 — FOREST STAND LABEL
- FS2-P1 — FOREST STAND PLOT POINT
- FOREST STAND BREAK LINE
- SOIL BOUNDARY
- WETLAND BOUNDARY
- B — 25 FT WETLAND BUFFER
- TPF — TREE PROTECTION FENCE
- STEEP SLOPES 15-25%
- STEEP SLOPES >25%
- SF — SILT FENCE

TREE PROTECTION NOTES:

1. ROOT PRUNING SHALL BE CONDUCTED ALONG TPF AND ALONG EDGE OF GRADING ADJACENT TO TREES AS DIRECTED BY MD LTE.
2. SEE FCN-01 TO FCN-04 FOR TREE INVENTORY TABLES, TREE PROTECTION NOTES, SEQUENCE OF TREE CONSERVATION PROCEDURES, AND TREE PROTECTION DETAILS.
3. THE NET TRACT AREA IS CONSIDERED THE LIMIT OF DISTURBANCE (LOD) AND TOTALS 3.26 AC.

Alex Nassaum 02/28/2025
MARYLAND DNR QUALIFIED PROFESSIONAL — DATE
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PROJECT CONTRACT #59882	Revisions
GP #GRA-002122-2022	
SIGN AND SEAL	

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

FOREST CONSERVATION PLAN

Drawn By : EHHA	Scale : 1" = 20'
Designed By : AJNEHHA	Date : FEBRUARY 2025
Reviewed By : KDG	
Drawing No. FCP-02 of FCP-04	Sheet No. 41 of 47

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1 INCH = 20 FEET
BY: ehaight –
PLOTTED: 2/28/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\41_FCP-P002-Woodland.dgn

THOMAS & DARLENE LIVINGSTON
231 VICTORY LANE

CHRISTIAN B & KAY LEWIS WILSON
257 VICTORY LANE

MARCUS A & NANCY M MELEFSKY
267 VICTORY LANE

KATRINA M EBERWEIN
277 VICTORY LANE

THOMAS E (ET AL) LIVINGSTON
242 VICTORY LANE

MARIA & RICHARD JR SANTANA-STAGE
115 WOODLAND DRIVE

JOHN M & ROSE MARIE HURBAN
201 WOODLAND DRIVE

ANNE N. VALENCIA
111 WOODLAND DRIVE

MICHAEL A FISHER
109-C WOODLAND DRIVE

VICTORY LA

WOODLAND DR

TEMPORARY MULCH ACCESS ROAD
WITH TIMBER MATTING

MATCH LINE, SEE FCP-02

MATCH LINE, SEE FCP-04

E 1500390
N 677660

N 678040
E 1500640

N 677660
E 1500640

MAC

SCE

TAB

SF

SF-1

SF-2

FS2-P1

FS1-P2

WE-1A
WE-1B
WE-2B
WE-3B
WE-4B
WF-1
WF-2
WF-3
WF-4
WF-4A
WF-4B
WF-4C
WF-4D
WF-4E
WG-1A
WG-1B
WG-2B
WG-3A
WG-3B
WG-4A
WG-4B

STANDARD PROPOSED SYMBOLS

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- LOG VANE
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- RIFFLE GRADE CONTROL MIX
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- SPECIMEN TREE PROTECTION SIGN
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TREE PROTECTION NOTES:

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3. THE NET TRACT AREA IS CONSIDERED THE LIMIT OF DISTURBANCE (LOD) AND TOTALS 3.26 AC.

Alex Nilsen 02/28/2025
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WOODLAND RUN STREAM RESTORATION

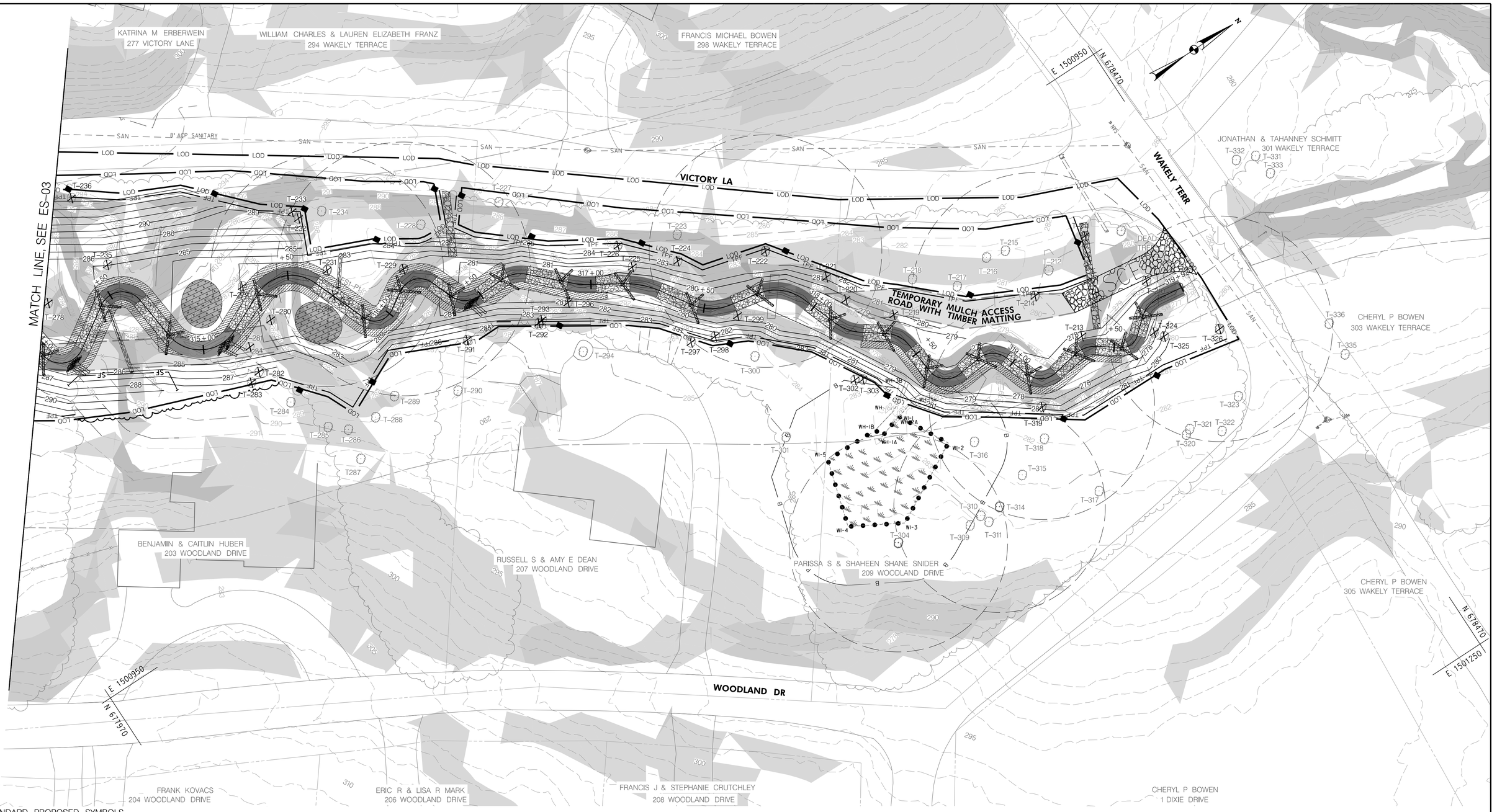
FOREST CONSERVATION PLAN

Drawn By : EHHA
Designed By : AJNEHHA
Reviewed By : KDG
Drawing No. FCP-03 of FCP-04

Scale : 1" = 20'
Date : FEBRUARY 2025
Sheet No. 42 of 47

ADC MAP: 21 GRID: H10
TAX MAP: 0049 GRID: 0003C
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1"=20'
BY: ehaight -

PLOTTED: 2/28/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\42_FCP-P003-Woodland.dgn



STANDARD PROPOSED SYMBOLS

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- SCE — STABILIZED CONSTRUCTION ENTRANCE (SCE)
- EXISTING FOREST LINE
- PROPOSED FOREST LINE
- FS2 — FOREST STAND LABEL
- FS2–P1 — FOREST STAND PLOT POINT
- FOREST STAND BREAK LINE
- SOIL BOUNDARY
- WETLAND BOUNDARY
- B — 25 FT WETLAND BUFFER
- TPF — TREE PROTECTION FENCE
- STEEP SLOPES 15–25%
- STEEP SLOPES >25%
- SF — SILT FENCE

TREE PROTECTION NOTES:

1. ROOT PRUNING SHALL BE CONDUCTED ALONG TPF AND ALONG EDGE OF GRADING ADJACENT TO TREES AS DIRECTED BY MD LTE.
2. SEE FCN–01 TO FCN–04 FOR TREE INVENTORY TABLES, TREE PROTECTION NOTES, SEQUENCE OF TREE CONSERVATION PROCEDURES, AND TREE PROTECTION DETAILS.
3. THE NET TRACT AREA IS CONSIDERED THE LIMIT OF DISTURBANCE (LOD) AND TOTALS 3.26 AC.

Alex Nussbaum 02/28/2025
MARYLAND DNR QUALIFIED PROFESSIONAL — DATE
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PROJECT CONTRACT #59882	Revisions
GP #GRA-002122-2022	
SIGN AND SEAL	

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

FOREST CONSERVATION PLANS

Drawn By : EHHA	Scale : 1" = 20'
Designed By : AJNEHHA	Date : FEBRUARY 2025
Reviewed By : KDG	
Drawing No. FCP-04 of FCP-04	Sheet No. 43 of 47

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1"=20'
BY: ehaight –

PLOTTED: 2/28/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\43_FCP-P004-Woodland.dgn

WOODLAND RUN STREAM RESTORATION PROJECT - TREE INVENTORY TABLE

Tree ID	Scientific Name	Common Name	DBH	Condition	Comments
T-1	*Prunus serotina*	Black cherry	14	Fair	Codominant, extensive vines into crown, slight lean
T-2	*Robinia pseudoacacia*	Black locust	16	Fair/poor	Low branch dieback, thin crown
T-3**	*Fagus grandifolia*	American beech	40	Good/fair	Included bark, poor branching structure, codominant
T-4**	*Fagus grandifolia*	American beech	59	Fair/poor	Trunk rot, trunk cavities, low branch dieback
T-5	*Acer rubrum*	Red maple	13	Fair	Poor branching structure, on stream bank
T-6	*Acer rubrum*	Red maple	17	Fair	Low branch dieback
T-7	*Acer rubrum*	Red maple	15	Good	Thin crown
T-8	*Acer rubrum*	Red maple	18	Good/fair	Bend in leader
T-9	*Nyssa sylvatica*	Blackgum	26	Fair/poor	Branch dieback in crown
T-10	*Acer rubrum*	Red maple	24	Good/fair	Included bark, low branch dieback
T-11	*Liriodendron tulipifera*	Tulip poplar	17	Fair	Bend in leader, uneven crown
T-12	*Liriodendron tulipifera*	Tulip poplar	16	Good/fair	Thin crown
T-13	*Liriodendron tulipifera*	Tulip poplar	17	Fair	Unbalanced crown, thin crown
T-15	*Liriodendron tulipifera*	Tulip poplar	15	Good/fair	Slight lean, low branch dieback
T-16	*Acer rubrum*	Red maple	14	Fair/poor	Twin (DBH 14" & 8"), significant epicormic bud growth, low branch dieback
T-40	*Liriodendron tulipifera*	Tulip poplar	17	Fair	Vines, irregular growth form, bend in leader
T-44	*Pinus strobus*	White pine	18	Fair/poor	Slight lean, low branch dieback
T-45	*Pinus strobus*	White pine	19	Fair/poor	Slight lean, low branch dieback
T-46	*Acer rubrum*	Red maple	23	Good/fair	Minor vines
T-47	*Acer rubrum*	Red maple	12	Fair	Vines into crown, slight lean
T-48	***Ulmus americana***	**American elm**	**14**	**Fair/poor**	**Lean, vines into crown, low branch dieback**
T-49	***Morus alba***	**White mulberry**	**20**	**Poor**	**Lean, extensive dieback in crown, poor structure, vines**
T-50	***Morus alba***	**White mulberry**	**16**	**Fair/poor**	**Major lean, vines into crown**
T-51	***Acer saccharinum***	**Silver maple**	**20**	**Fair**	**Leaning, vines into crown**
T-52	***Acer rubrum***	**Red maple**	**30**	**Fair**	**Codominant, low branch dieback**
T-53	***Liriodendron tulipifera***	**Tulip poplar**	**18**	**Fair**	**Bend in leader, poor branch structure**
T-54	***Acer saccharinum***	**Silver maple**	**13**	**Fair**	**Leaning, vines into crown, bend in trunk**
T-55	***Liriodendron tulipifera***	**Tulip poplar**	**13**	**Fair**	**Bend in leader, thin crown**
T-56	***Liriodendron tulipifera***	**Tulip poplar**	**13**	**Fair**	**Bend in leader, thin crown, along stream bank**
T-57	***Acer rubrum***	**Red maple**	**15**	**Fair**	**Codominant, double trunk above breast height, bend in one leader**
T-58	***Liriodendron tulipifera***	**Tulip poplar**	**16**	**Fair**	**Codominant, double trunk above breast height, low branch dieback**
T-59	***Liriodendron tulipifera***	**Tulip poplar**	**12**	**Good/fair**	**Bend in leader**
T-60	***Liriodendron tulipifera***	**Tulip poplar**	**19**	**Fair**	**Poor branching structure, low branch dieback**
T-61	***Acer rubrum***	**Red maple**	**12**	**Fair**	**Double trunk, smaller stem 10" DBH, bend in leader**
T-62	***Liriodendron tulipifera***	**Tulip poplar**	**17**	**Good/fair**	**Bend in leader**
T-63	***Acer rubrum***	**Red maple**	**13**	**Good**	**On stream bank, minor vines at the base**
T-64	***Acer rubrum***	**Red maple**	**15**	**Fair**	**Double trunk with 10" stem**
T-65	*Acer rubrum*	Red maple	23	Fair	Codominant above breast height
T-66	***Acer rubrum***	**Red maple**	**13**	**Fair**	**Bend in leader, on stream bank**
T-67	*Liriodendron tulipifera*	Tulip poplar	18	Fair/poor	Vines into crown, thin crown
T-68	*Acer negundo*	Boxelder	12	Fair/poor	Vines into crown, low branch dieback
T-70	*Liriodendron tulipifera*	Tulip poplar	22	Fair/poor	Heavy vines into crown, thin crown
T-71	*Liriodendron tulipifera*	Tulip poplar	15	Poor	Little to no crown, vines into crown
T-72	*Acer rubrum*	Red maple	12	Fair/poor	Leaning, vines into crown
T-73	*Liriodendron tulipifera*	Tulip poplar	19	Poor	No crown
T-74	*Acer rubrum*	Red maple	12	Fair/poor	Vines into crown
T-75	*Acer rubrum*	Red maple	23	Fair/poor	Heavy vines into crown, trunk rot into crown
T-76	*Prunus serotina*	Black cherry	23	Fair/poor	Heavy vines into crown
T-78	*Prunus serotina*	Black cherry	12	Fair/poor	Vines into crown, leaning
T-79	*Nyssa sylvatica*	Blackgum	23	Poor	Almost dead, heavy vines into crown
T-80	*Fraxinus pennsylvanica*	Green ash	15	Fair/poor	Heavy vines into crown, slight bend in leader
T-81	*Liriodendron tulipifera*	Tulip poplar	19	Fair/poor	Leaning, heavy vines into crown
T-82	***Robinia pseudoacacia***	**Black locust**	**17**	**Fair/poor**	**Leaning, bend in leader, vines into crown**
T-83	***Acer rubrum***	**Red maple**	**16**	**Fair**	**Thin crown, bend in crown**
T-84	***Fraxinus***	**Green ash**	**13**	**Fair**	**Bend in leader, edge of streambank**
T-85	***Liriodendron tulipifera***	**Tulip poplar**	**27**	**Fair**	**Vines, edge of streambank**
T-86	***Liriodendron tulipifera***	**Tulip poplar**	**18**	**Fair**	**Minor vines at base**
T-87	***Fagus grandifolia***	**American beech**	**12**	**Fair**	**Codominant, double trunk below dbh, other stem 7" DBH**
T-88	*Liriodendron tulipifera*	Tulip poplar	25	Fair	Poor branching structure
T-89**	*Quercus coccinea*	Scarlet oak	37	Fair	Low branch dieback
T-90	*Acer platanoides*	Norway maple	15	Fair	Poor branching structure
T-91	*Quercus rubra*	Northern red oak	18	Fair	Low branch dieback
T-92	*Liriodendron tulipifera*	Tulip poplar	26	Fair	Minor vines at base
T-93**	*Quercus rubra*	Northern red oak	36	Fair	Slight lean, unbalanced crown
T-94	***Liriodendron tulipifera***	**Tulip poplar**	**31**	**Fair/poor**	**Vines into crown, little to no crown**
T-95	***Acer rubrum***	**Red maple**	**19**	**Fair**	**Codominant, double trunk with T-96**
T-96	***Acer rubrum***	**Red maple**	**13**	**Fair**	**Double trunk with T-95**
T-97	***Acer saccharinum***	**Silver maple**	**12**	**Fair/poor**	**Vines into crown, thin crown**
T-98	*Acer rubrum*	Red maple	12	Fair	Vines into crown, low branch dieback
T-99	*Liriodendron tulipifera*	Tulip poplar	26	Fair	Low branch dieback
T-100**	*Liriodendron tulipifera*	Tulip poplar	34	Fair	Poor branching structure, some trunk rot at base
T-101	*Acer rubrum*	Red maple	12	Good	Slight bend, lean in leader
T-102	*Acer platanoides*	Norway maple	13	Fair	English ivy along trunk
T-103	*Robinia pseudoacacia*	Black locust	25	Fair	Missing limbs, missing bark, broken branches
T-104	*Pinus strobus*	White pine	15	Fair	Heavy vines
T-105	*Acer rubrum*	Red maple	18	Good	Double trunk (14" DBH), slight lean
T-106	*Pinus strobus*	White pine	15	Good	Minor vines
T-106A	***Fraxinus***	**Green ash**	**12**	**Good**	**Slight lean**
T-107	*Liriodendron tulipifera*	Tulip poplar	14	Fair	Leaning, minor vines
T-108	***Acer rubrum***	**Red maple**	**28**	**Fair**	**Missing bark, broken branches**
T-109	***Fraxinus***	**Green ash**	**17**	**Fair**	**Leaning**
T-110	***Robinia pseudoacacia***	**Black locust**	**14**	**Fair**	**Bend in leader, minor vines, leaning**
T-111	***Carya glabra***	**Pignut hickory**	**14**	**Fair**	**Vines, broken branches**
T-112	***Fraxinus***	**Green ash**	**16**	**Fair**	**Leaning, minor vines**
T-113	***Pinus strobus***	**White pine**	**14**	**Good**	**Minor vines**
T-114	***Fraxinus***	**Green ash**	**22**	**Fair**	**Vines, broken branches**
T-115	***Acer saccharinum***	**Silver maple**	**15**	**Fair**	**Slight lean, ivy**
T-116	***Quercus rubra***	**Northern red oak**	**26**	**Fair**	**Heavy vines, dead branches**
T-117	***Liriodendron tulipifera***	**Tulip poplar**	**28**	**Fair**	**Heavy vines**
T-118	***Acer rubrum***	**Red maple**	**14**	**Good**	
T-120	***Acer rubrum***	**Red maple**	**18**	**Fair**	**Unbalanced crown**
T-121	*Acer rubrum*	Red maple	25	Fair	Heavy vines
T-122	*Acer campestre*	Hedge maple	13	Good	Woodpecker damage
T-123	*Castanea dentata*	American chestnut	22	Fair	Heavy vines
T-124	*Prunus serotina*	Black cherry	26	Poor	Heavy vines, galls, branch dieback in crown
T-125	*Magnolia grandiflora*	Southern magnolia	22	Fair	Leaning, located on slope
T-126	*Liriodendron tulipifera*	Tulip poplar	15	Fair	Leaning
T-127	*Acer rubrum*	Red maple	22	Fair	Vines, exposed roots, broken branches, located on slope
T-128	*Catalpa speciosa*	Catalpa	22	Fair	Heavy leaning, vines, located on slope
T-129	***Liriodendron tulipifera***	**Tulip poplar**	**18**	**Good**	
T-130	***Platanus occidentalis***	**American**	**21**	**Fair**	**Leaning, unbalanced crown, heavy vines**
T-131	***Carya glabra***	**Pignut hickory**	**17**	**Fair**	**Heavy vines**
T-132	***Liriodendron tulipifera***	**Tulip poplar**	**35**	**Poor**	**Split trunk below DBH, 2nd leader 25" DBH, heavy vines, irregular trunk**
T-133	*Fagus grandifolia*	American beech	29	Good	Minor vines
T-134**	*Catalpa speciosa*	Catalpa	39	Poor	Significant lean, one sided crown, vines
T-136	***Acer saccharum***	**Sugar maple**	**16**	**Fair**	**Leaning, pruned**
T-137**	*Acer rubrum*	Red maple	30	Poor	Broken branches, poorly pruned, minor vines, galls
T-138	*Prunus subhirtella*	Weeping cherry	13	Fair	Slight lean, irregular trunk
T-139	***Liriodendron tulipifera***	**Tulip poplar**	**34**	**Fair**	**Vines, irregular trunk**
T-140	***Salix nigra***	**Black willow**	**14**	**Poor**	**Significant lean, water sprouts, minor vines**
T-141	***Robinia pseudoacacia***	**Black locust**	**15**	**Fair**	**Heavy vines, slight lean**
T-142	***Acer rubrum***	**Red maple**	**14**	**Poor**	**Leaning, heavy vines, 2nd leader dead**
T-143	***Liriodendron tulipifera***	**Tulip poplar**	**33**	**Fair**	**Heavy vines**
T-144	***Robinia pseudoacacia***	**Black locust**	**13**	**Fair**	**Leaning, vines**
T-145	***Liriodendron tulipifera***	**Tulip poplar**	**31**	**Poor**	**Significant lean, missing bark, vines**
T-146	***Liriodendron tulipifera***	**Tulip poplar**	**12**	**Fair**	**Unbalanced crown, growing into another tulip poplar**
T-147	*Acer rubrum*	Red maple	14	Poor	Leaning, vines, cavity
T-148	***Acer rubrum***	**Red maple**	**16**	**Fair**	**Heavy vines**
T-149	***Liriodendron tulipifera***	**Tulip poplar**	**26**	**Poor**	**Significant lean, vines, dead crown**
T-150	***Liriodendron tulipifera***	**Tulip poplar**	**29**	**Poor**	**Heavy vines into crown, heavy branch dieback**
T-151	***Liriodendron tulipifera***	**Tulip poplar**	**28**	**Poor**	**Heavy vines, cavity, partially dead crown**
T-152	***Acer rubrum***	**Red maple**	**26**	**Poor**	**Vines, dead and broken branches**
T-153	***Fagus grandifolia***	**American beech**	**21**	**Fair**	**Broken branches, exposed roots**
T-154	***Juglans nigra***	**Black walnut**	**16**	**Fair**	**Broken branches, leaning, irregular trunk**
T-155	*Liriodendron tulipifera*	Tulip poplar	13	Good	
T-156	*Carya glabra*	Pignut hickory	22	Good	Minor vines
T-157	*Cornus florida*	Flowering dogwood	12	Good	Measured below DBH, multi stem
T-158	***Liriodendron tulipifera***	**Tulip poplar**	**16**	**Good**	
T-159	*Acer palmatum*	Japanese maple	14	Good	
T-160	***Ilex cornuta***	**Burford holly**	**12**	**Poor**	**Significant vines, vines in crown**
T-161	*Acer saccharinum*	Silver maple	27	Fair	Unbalanced crown
T-162	***Acer saccharinum***	**Silver maple**	**30**	**Fair**	**Vines**
T-163	***Platanus occidentalis***	**American sycamore**	**17**	**Poor**	**Heavy vines, significant lean, unbalanced crown**
T-164	***Robinia pseudoacacia***	**Black locust**	**15**	**Poor**	**Heavy vines, vines in crown**
T-165	***Robinia pseudoacacia***	**Black locust**	**14**	**Poor**	**Significant lean, heavy vines**
T-166	***Acer platanoides***	**Norway maple**	**12**	**Good**	**Minor vines**
T-167	*Platanus occidentalis*	American sycamore	19	Fair	Slight lean
T-168	*Robinia pseudoacacia*	Black locust	14	Fair	Leaning
T-169	*Prunus serotina*	Black cherry	16	Fair	Galls, lichen
T-170	***Robinia pseudoacacia***	**Black locust**	**15**	**Poor**	**Heavy vines, dead branches**
T-171	*Liriodendron tulipifera*	Tulip poplar	24	Fair	Heavy vines
T-172	*Robinia pseudoacacia*	Black locust	14	Poor	Vines, leaning, dead branches
T-173	***Diospyros virginiana***	**Persimmon**	**17**	**Good**	**Minor bark damage at base of trunk**
T-174	*Acer rubrum*	Red maple	20	Good	
T-175	***Fagus grandifolia***	**American beech**	**30**	**Good**	
T-176	*Quercus alba*	White oak	12	Good	
T-177	*Acer rubrum*	Red maple	18	Good	
T-178	*Fraxinus pennsylvanica*	Green ash	20	Fair	Leaning, dead branches, pruned
T-179	*Fraxinus pennsylvanica*	Green ash	19	Fair	Leaning, dead branches
T-180	*Acer rubrum*	Red maple	22	Fair	Leaning
T-181	*Acer rubrum*	Red maple	19	Fair	2nd leader 14" DBH, broken branches, small cavity
T-182	*Liriodendron tulipifera*	Tulip poplar	13	Good	Minor vine at base
T-183	*Picea abies*	Norway spruce	12	Good	Minor vines at base
T-184**	*Quercus rubra*	Northern red oak	44	Fair	Minor vines, pruned branches, dead branches
T-185	*Pinus strobus*	White pine	12	Fair	Minor vines, dead branches
T-186	*Acer saccharinum*	Silver maple	13	Fair	Vines
T-187	*Acer saccharinum*	Silver maple	13	Fair	Heavy vines
T-188	*Carya tomentosa*	Mockernut hickory	22	Good	Minor vines
T-189	*Fraxinus pennsylvanica*	Green ash	23	Fair	Heavily pruned, leaning
T-190	*Fraxinus pennsylvanica*	Green ash	22	Good	
T-191	***Nyssa sylvatica***	**Blackgum**	**12**	**Poor**	**Exposed roots, on stream bank**
T-192	***Acer rubrum***	**Red maple**	**20**	**Fair**	**Slight lean, 2nd leader 18 DBH**
T-193	***Diospyros virginiana***	**Persimmon**	**19**	**Fair**	**2nd leader 18 DBH, irregular trunk, leaning, minor vines**
T-194	***Diospyros virginiana***	**Persimmon**	**20**	**Fair**	**Significant lean**
T-195	***Prunus serotina***	**Black cherry**	**13**	**Poor**	**Leaning, dead branch**
T-196	*Liriodendron tulipifera*	Tulip poplar	25	Good	
T-197	*Acer saccharinum*	Silver maple	15	Fair	Slight lean
T-198**	*Quercus rubra*	Northern red oak	32	Good	Minor vines
T-199**	*Quercus alba*	White oak	46	Fair	Leaning, vines
T-200	*Acer rubrum*	Red maple	16	Poor	Cavity, vines, 2nd leader 12" DBH
T-201	*Fagus grandifolia*	American beech	12	Good	
T-202	*Acer rubrum*	Red maple	25	Fair	Vines, split below breast height, 2nd leader 15" DBH
T-203	*Quercus rubra*	Northern red oak	25	Good	
T-204	*Liriodendron tulipifera*	Tulip poplar	20	Fair	Irregular trunk, galls, lean
T-205	*Liriodendron tulipifera*	Tulip poplar	28	Good	
T-206	*Liriodendron tulipifera*	Tulip poplar	14	Good	
T-207	***Acer rubrum***	**Red maple**	**20**	**Poor**	**Exposed roots, leaning, located along steam bank, galls**
T-208	***Liriodendron tulipifera***	**Tulip poplar**	**25**	**Fair**	**Exposed roots along stream bank**
T-209	***Acer rubrum***	**Red maple**	**35**	**Fair**	**Vines, small cavity**
T-210	*Fagus grandifolia*	American beech	25	Fair	Leaning, exposed roots, located on stream bank
T-211	***Fraxinus pennsylvanica***	**Green ash**	**17**	**Good**	
T-213	*Fagus grandifolia*	American beech	27	Fair	Vines, irregular trunk
T-214	***Liriodendron tulipifera***	**Tulip poplar**	**35**	**Fair**	**Splits below breast height, 2nd leader is 32" DBH, broken branch, missing bark**
T-215	*Liriodendron tulipifera*	Tulip poplar	18	Fair	Leaning, vines
T-216	*Liriodendron tulipifera*	Tulip poplar	20	Fair	Vines
T-217	*Liriodendron tulipifera*	Tulip poplar	20	Fair	Vines, galls
T-218	***Fagus grandifolia***	**American beech**	**28**	**Good-fair**	**Exposed roots, dead branches**
T-219	***Fagus grandifolia***	**American beech**	**17**	**Good**	
T-220	***Fagus grandifolia***	**American beech**	**27**	**Fair**	**Exposed roots, on edge of stream bank**
T-221	***Liriodendron tulipifera***	**Tulip poplar**	**21**	**Fair**	**Minor bark damage at base**
T-222	***Liriodendron tulipifera***	**Tulip poplar**	**33**	**Poor**	**Cavity at base, minor vines, branch dieback**
T-223	*Fagus grandifolia*	American beech	29	Fair	Significant lean, missing branches
T224	***Liriodendron tulipifera***	**Tulip poplar**	**28**	**Fair**	**Leaning, roots exposed, dieback in crown**
T-225	***Fagus grandifolia***	**American beech**	**19**	**Fair**	**Water sprouts, exposed roots, located along stream bank**
T-226	***Liriodendron tulipifera***	**Tulip poplar**	**20**	**Fair**	**Cavity in trunk, branch dieback**
T-227	*Fagus grandifolia*	American beech	29	Fair	Galls
T-228	*Liriodendron tulipifera*	Tulip poplar	14	Fair	Leaning, exposed roots
T-229	***Fagus grandifolia***	**American beech**	**36**	**Fair**	**Leaning, exposed roots**
T-230	***Liriodendron tulipifera***	**Tulip poplar**	**21**	**Fair**	**Vines**
T-231	***Liriodendron tulipifera***	**Tulip poplar**	**33**	**Fair**	**Bark damage and rot**
T-232	***Acer rubrum***	**Red maple**	**13**	**Fair**	**Exposed roots, close to stream, split below breast height, 2nd leader 9" DBH**
T-233	***Acer rubrum***	**Red maple**	**15**	**Fair**	**Galls, minor vines, exposed roots**
T-234	***Liriodendron tulipifera***	**Tulip poplar**	**29**	**Fair**	**Vines, bark damage**
T-235	***Liriodendron tulipifera***	**Tulip poplar**	**26**	**Fair**	**Heavy vines, galls**
T-236	***Liriodendron tulipifera***	**Tulip poplar**	**24**	**Fair**	**Leaning, vines, 2nd leader 24" DBH, split below breast height**
T-237	***Liriodendron tulipifera***	**Tulip poplar**	**29**	**Fair**	**Minor vines, exposed roots**
T-238	***Liriodendron tulipifera***	**Tulip poplar**	**16**	**Fair**	**Roots, slight lean**
T-239	***Liriodendron tulipifera***	**Tulip poplar**	**20**	**Fair**	**Leaning, irregular trunk twisted with another tree**
T-240	***Acer rubrum***	**Red maple**	**15**	**Good**	
T-241	***Liriodendron tulipifera***	**Tulip poplar**	**14**	**Fair**	**Lean**
T-241A	***Liriodendron tulipifera***	**Tulip poplar**	**26**	**Fair**	**Leaning, damaged bark**
T-242	***Acer rubrum***	**Red maple**	**14**	**Fair**	**Exposed roots, located along stream bank, branch dieback**
T-243	***Fagus grandifolia***	**American beech**	**13**	**Fair**	**Significant lean, exposed roots, located along stream bank, minor vines**
T-244	***Liriodendron tulipifera***	**Tulip poplar**	**19**	**Good**	
T-245	***Acer rubrum***	**Red maple**	**20**	**Good**	
T-246	***Acer rubrum***	**Red maple**	**21**	**Fair**	**Heavy vines, split below breast height, 2nd leader 14" DBH**
T-247	***Fagus grandifolia***	**American beech**	**36**	**Fair**	**Exposed roots, small trunk wound at base**
T-248	*Fagus grandifolia*	American beech	15	Fair	Vines, exposed roots
T-249	*Fagus grandifolia*	American beech	17	Fair	Minor vines, trunk wounds
T-250	***Fagus grandifolia***	**American beech**	**31**	**Fair**	**Trunk cavity, wounds, minor vines, branch dieback**
T-252	*Taxodium distichum*	Bald cypress	12	Fair	Bend in leader, branch dieback
T-253	*Taxodium distichum*	Bald cypress	17	Good	Minor vines at base of trunk, tree flagged not tagged
T-254	*Fagus grandifolia*	American beech	19	Fair	Leaning, minor vines, slight damage at base
T-255	*Fraxinus pennsylvanica*	Green ash	17	Fair	Irregular trunk, leaning
T-256	***Prunus serotina***	**Black cherry**	**14**	**Fair**	**Leaning, irregular trunk**
T-257	***Liriodendron tulipifera***	**Tulip poplar**	**18**	**Fair**	**Significant lean, thin crown, small crack at base of trunk**
T-258	*Acer rubrum*	Red maple	16	Poor	Exposed roots, significant lean, galls
T-259	*Quercus alba*	White oak	25	Fair	Exposed roots, unbalanced crown, branch dieback
T-260	***Liriodendron tulipifera***	**Tulip poplar**	**24**	**Good**	
T-261	***Liriodendron tulipifera***	**Tulip poplar**	**18**	**Good**	
T-262	*Fraxinus pennsylvanica*	Green ash	13	Poor	Exposed roots, significant lean over channel, irregular trunk, thin canopy
T-263	***Ulmus rubra***	**Slippery elm**	**17**	**Fair**	**Slight lean and curve to trunk**
T-264	***Liriodendron tulipifera***	**Tulip poplar**	**15**	**Fair**	**Leaning, thin canopy**
T-265	***Liriodendron tulipifera***	**Tulip poplar**	**16**	**Fair**	**Leaning, thin canopy**
T-266	***Liriodendron tulipifera***	**Tulip poplar**	**13**	**Fair**	**Exposed roots, thin canopy**
T-267	***Liriodendron tulipifera***	**Tulip poplar**	**19**	**Fair**	**Exposed roots, thin canopy, leaning**
T-268	*Fagus grandifolia*	American beech	24	Poor	Leaning, cavity in trunk, vines, irregular trunk
T-269	*Liriodendron tulipifera*	Tulip poplar	13	Fair	Exposed roots, irregular roots, thin canopy
T-270	***Fagus grandifolia***	**American beech**	**19**	**Fair**	**Exposed roots, branch dieback, unbalanced crown**
T-271**	*Liriodendron tulipifera*	Tulip poplar	32	Fair	Thin canopy, vines, branch dieback
T-272	*Platanus occidentalis*	American sycamore	19	Fair	Vines, broken branches, unbalanced crown
T-273	***Acer rubrum***	**Red maple**	**23**	**Poor**	**Significant lean, trunk twisted at base, thin canopy**
T-274	***Fagus grandifolia***	**American beech**	**19**	**Poor**	**Exposed roots, located along stream bank, vines, leaning, unbalanced crown**
T-275	***Liriodendron tulipifera***	**Tulip poplar**	**21**	**Fair**	**Exposed roots, leaning, located along stream bank, vines**
T-276	***Liriodendron tulipifera***	**Tulip poplar**	**15**	**Good**	
T-277	***Liriodendron tulipifera***	**Tulip poplar**	**12**	**Fair**	**Minor vines, thin canopy**
T-278	*Liriodendron tulipifera*	Tulip poplar	16	Fair	Leaning, thin canopy
T-279	***Fagus grandifolia***	**American beech**	**22**	**Fair**	**Exposed roots, leaning**
T-280	***Liriodendron tulipifera***	**Tulip poplar**	**18**	**Poor**	**Leaning, thin crown, located at edge of stream bank, branch dieback**
T-281	***Liriodendron tulipifera***	**Tulip poplar**	**15**	**Fair**	**Thin crown**
T-282	***Liriodendron tulipifera***	**Tulip poplar**	**15**	**Fair**	**Heavy vines**
T-283	***Liriodendron tulipifera***	**Tulip poplar**	**20**	**Fair**	**Leaning, thin crown**
T-284	*Liriodendron tulipifera*	Tulip poplar	24	Fair	Slight lean, minor branch dieback
T-285	*Liriodendron tulipifera*	Tulip poplar	29	Fair	Vines, thin crown
T-286	*Liriodendron tulipifera*	Tulip poplar	26	Fair	Vines, thin crown
T-287	*Liriodendron tulipifera*	Tulip poplar	29	Fair	Minor vines, thin crown, branch dieback
T-288	*Liriodendron tulipifera*	Tulip poplar	15	Fair	Thin crown
T-289	*Liriodendron tulipifera*	Tulip poplar	23	Good	
T-290	*Liriodendron tulipifera*	Tulip poplar	13	Good	
T-291	***Fagus grandifolia***	**American beech**	**28**	**Fair**	**Exposed roots, branch dieback**
T-292	***Fagus grandifolia***	**American beech**	**17**	**Fair**	**Leaning, fused with white oak, pruned**
T-293	***Quercus alba***	**White oak**	**20**	**Fair**	**Exposed roots, located along stream bank, fused with beech, leaning**
T-294	*Fagus grandifolia*	American beech	21	Good	
T-296	***Fagus grandifolia***	**American beech**	**19**	**Fair**	**Exposed roots, located along stream bank, minor vines**
T-297	***Fagus grandifolia***	**American beech**	**21**	**Fair**	**Minor branch dieback, minor vines**
T-298	***Liriodendron tulipifera***	**Tulip poplar**	**15**	**Fair**	**Leaning, thin crown, exposed roots, located along stream bank**
T-299	***Acer rubrum***	**Red maple**	**16**	**Poor**	**Significant lean, exposed roots, irregular trunk, located along stream bank**
T-300	*Nyssa sylvatica*	Blackgum	13	Poor	Cavity at base of trunk, thin crown, leaning, missing bark
T-301	*Acer rubrum*	Red maple	26	Fair	Minor vines, leaning, minor branch dieback
T-302	***Liriodendron tulipifera***	**Tulip poplar**	**26**	**Fair**	**Exposed roots, bark damage, leaning, thin crown**
T-303	***Liriodendron tulipifera***	**Tulip poplar**	**23**	**Fair**	**Exposed roots, bark damage, leaning, branch dieback, thin crown**
T-304**	*Quercus alba*	White oak	31	Good	Slight lean
T-309	*Liriodendron tulipifera*	Tulip poplar	29	Fair	Bark damage, thin crown
T-310	*Fagus grandifolia*	American beech	12	Good	
T-311	*Fagus grandifolia*	American beech	13	Good	
T-312	*Nyssa sylvatica*	Blackgum	22	Fair	Missing bark, irregular trunk, thin crown, missing branch
T-313	*Nyssa sylvatica*	Blackgum	12	Poor	Bark damage, crack in trunk, thin crown
T-314**	*Quercus alba*	White oak	30	Fair	Exposed roots, bark damage
T-315	*Fagus grandifolia*	American beech	16	Good	
T-316	*Quercus alba*	White oak	22	Fair	Leaning, bend in leader
T-317	*Fagus grandifolia*	American beech	15	Fair	Irregular trunk, water sprouts
T-318	*Fagus grandifolia*	American beech	13	Fair	Exposed roots
T-319	***Liriodendron tulipifera***	**Tulip poplar**	**32**	**Fair**	**Exposed roots, leaning, thin crown, located along stream bank**
T-320	*Quercus alba*	White oak	15	Good	Slight lean
T-321	*Fagus grandifolia*	American beech	15	Good	
T-322	*Quercus alba*	White oak	21	Fair	Slight lean, unbalanced crown
T-323	*Carya glabra*	Pignut hickory	18	Fair	Small trunk wound
T-324	***Quercus rubra***	**Northern red oak**	**25**	**Fair**	**Dead branches, exposed roots, thin crown, located along stream bank**
T-325	***Liriodendron tulipifera***	**Tulip poplar**	**17**	**Fair**	**Leaning, minor vine**
T-326	***Quercus rubra***	**Northern red oak**	**32**	**Poor**	**Large cavity, oozing, thin crown, dead leader, branch dieback**
T-331	*Liriodendron tulipifera*	Tulip poplar	16	Good	Minor vines
T-332	*Liriodendron tulipifera*	Tulip poplar	16	Fair	Vines, thin crown
T-333	*Liriodendron tulipifera*	Tulip poplar	20	Fair	Thin crown
T-335	*Liriodendron tulipifera*	Tulip poplar	25	Fair	Damaged bark
T-336	*Quercus alba*	White oak	18	Good	
T337	*Liriodendron tulipifera*	Tulip poplar	17	Good	
T338**	*Liriodendron tulipifera*	Tulip poplar	38	Good/ fair	Minor branch die back, some branch pruning
T339	*Liriodendron tulipifera*	Tulip poplar	19	Good	
T340	*Liriodendron tulipifera*	Tulip poplar	13	Good	
T341	*Liriodendron tulipifera*	Tulip poplar	13	Fair	Slight lean, vines in trunk into canopy
T342	*Liriodendron tulipifera*	Tulip poplar	18	Good	
T343	*Liriodendron tulipifera*	Tulip poplar	22	Good	
T344	*Carya glabra*	Pignut hickory	26	Good/fair	Poison ivy on trunk into canopy
T345	*Liriodendron tulipifera*	Tulip poplar	15	Good	
T346	*Liriodendron tulipifera*	Tulip poplar	13	Good	
T347	*Populus deltoides*	Cottonwood	12	Fair	Branch dieback
T348	*Populus deltoides*	Cottonwood	15	Fair	Several broken branches, branch dieback
T349	*Populus deltoides*	Cottonwood	15	Fair	Dead branches, vines into canopy
T350	*Liriodendron tulipifera*	Tulip poplar	12	Fair	Heavy vine coverage on trunk into canopy
T-357	*Liriodendron tulipifera*	Tulip poplar	22	Fair	Heavy vines on trunk into canopy
T-358	*Liriodendron tulipifera*	Tulip poplar	13	Good	
T-359	*Liriodendron tulipifera*	Tulip poplar	13	Good	
T-373	*Liriodendron tulipifera*	Tulip poplar	12	Good	
T-374**	*Quercus alba*	White oak	51	Dead	Extensive dead wood. Decaying trunk. Standing dead.
T-375	*Robinia sp.*	Locust sp.	16	Fair	English ivy on trunk
T-376	*Castanea sativa*	European chestnut	15	Good	Not maintained landscaping plot
T-377	*Acer rubrum*	Red maple	15	Fair	Exposed and damaged roots, moderate vines, interfering branching
T-378	*Acer rubrum*	Red maple	12	Fair	Moderate vines, moderate dead branches, sparse canopy
T-380	*Acer rubrum*	Red maple	13	Good/Fair	Slight lean, minor vines
T-379	*Acer rubrum*	Red maple	24	Good/Fair	Minor vines, splits above DBH, minor branch dieback, minor dead wood
T-381	***Acer rubrum***	**Red maple**	**16**	**Good/Fair**	**Minor vines, minor dead wood**
T-382	***Fraxinus pennsylvanica***	**Green ash**	**15**	**Fair**	**Minor vines, sparse canopy**
T-383	***Nyssa sylvatica***	**Blackgum**	**18**	**Fair**	**Minor trun

TREE CONDITION ASSESSMENT GUIDELINES

- *Excellent* – healthy tree with exceptional growth form; no visible defects; well–formed crown; few minor dead branches acceptable; this tree condition is rare.
- *Good* – healthy tree; very minor defects/decay acceptable with callous forming/complete; well–formed crown; minor lean and/or few minor/major dead branches acceptable; vines may be growing along trunk but not present within crown.
- *Fair* – health questionable/stress evident; structurally sound tree; defects present that do not affect structural integrity; moderate lean; minor/major dead branches may be present; crown not broken out but not necessarily well formed or even; vines may be growing along trunk and within crown.

  Ex. Fair tree could be experiencing insect damage, or exhibit a growth form that makes it very susceptible to wind damage in an open setting.
- *Poor* – significant health problems; may be structurally unsound; may be dead or dying; may contain significant decay; may have broken or missing top/crown; may have heavy lean; vines may be significantly affecting tree health.

Note: These guidelines were developed by RK&K based on the professional judgment of our Certified Arborists and other senior environmental staff.

These tree species may commonly exhibit dead branches and/or ratty growth form/structure, which should be taken into account when assessing tree condition:

- Mulberry *(Morus spp.)*
- Pin Oak *(Quercus palustris)*
- Silver Maple *(Acer saccharinum)*
- Virginia Pine *(Pinus virginiana)*
- Scarlet Oak *(Quercus coccinea)*
- Black Locust *(Robinia pseudoacacia)*
- Osage Orange *(Maclura pomifera)*
- Willow Oak *(Quercus phellos)*
- Black Willow *(Salix nigra)*

IMPACT/MITIGATION SUMMARY TABLE

FEATURE	ACREAGE	SF
TOTAL NET TRACT AREA	3.26	141,870
FOREST WITHIN LOD	2.06	89,689
FOREST TO BE REMOVED	2.06	89,689
PROPOSED FOREST PLANTING	2.25	98,193

SOILS TABLE

Map Unit Symbol	Map Unit Name	K-Factor*	Drainage Class	Hydric Rating**	
CcB2	Chester silt loam, 3 to 8 percent slopes	0.32	Well drained	0	Non-hydric
CcC2	Chester silt loam, 8 to 15 percent slopes	0.32	Well drained	0	Non-hydric
GcC2	Glenelg loam, 8 to 15 percent slopes	0.24	Well drained	0	Non-hydric
GnB	Glenville silt loam, 3 to 8 percent slopes	0.37 (HE)	Moderately well drained	10	Partially Hydric

**K-Factor – Erodibility value assigned to soil types by NRCS. K > 0.35 are considered to be highly erodible soils*
**Hydric Rating – Value is based on the percentage of hydric soils within the soil type. Non-hydric soils have a value of 0, predominantly non-hydric soils have a value between 0 and 33, partially hydric soils have a value between 33 and 66, predominantly hydric soils have a value between 66 and 99, and hydric soils have a value of 100.*

Forest Stand Summary Sheet

Property: Woodland Run Stream Restoration Project

Location: Bel Air, Harford County, ADC Map # 17 H10 (Town, County ADC Map #, and Grid Coordinates)

Prepared By: SJF, ECH Date: 07/14/2023

Stand Variable	Stand # 1	Stand # 2	Stand # 3
1. Dominant species/ Co-dominant species	Tulip poplar, American beech, red maple, green ash, pignut hickory	Tulip poplar, red maple, Eastern hemlock, black locust, persimmon, Norway maple, white pine, silver maple	Tulip poplar, black cherry, American beech, blackgum, red maple, pignut hickory, Southern red oak
2. Forest Association	Tulip poplar	Tulip poplar	Tulip poplar
3. Successional stage	Mid	Mid	Mid
4. Basal Area in s.f. per acre	147.5	137.5	127.5
5. Size class of dominant species	20 to >30 inches DBH	12 to >30 inches DBH	20 to >30 inches DBH
6. Percent of canopy coverage	81.5	84.5	92
7. Number of tree species per acre	10	13	13
8. Common understory species	American beech, Japanese barberry, multiflora rose, mountain laurel, American holly, wineberry, Norway maple, Japanese knotweed	Bush honeysuckie, red maple, blackgum, greenbrier, wineberry, boxwood species, multiflora rose, grape species, Norway maple, sassafras, pignut hickory	Blackgum, American holly, green brier, witch hazel, bamboo, Oriental bittersweet, Japanese holly
9. Percent of understory cover 3' to 20' tall	62	47.5	57.5
10. Number of understory species 3' to 20' tall	4	6	4
11. Common herbaceous species	English ivy, creeping myrtle, mayapple, poison ivy, hay scented fern, Christmas fern, Virginia creeper, garlic mustard, jewelweed, spotted dead nettle, pachysandra	English ivy, Oriental bittersweet, garlic mustard, poison ivy, Christmas fern, creeping myrtle, pachysandra	Poison ivy, English ivy, Virginia creeper, sensitive fern, Japanese barberry, New York fern, wood reed
12. Percent of herbaceous & woody plant cover 0' to 3' tall	42.5	71.5	20
13. List of major invasive plant species and percent of cover	Spotted dead nettle, garlic mustard, Virginia creeper, Norway maple, Japanese knotweed, wineberry, multiflora rose, Japanese barberry, English ivy, creeping myrtle- 8.5%	Pachysandra, creeping myrtle, English ivy, wineberry, multiflora rose, Norway maple, Oriental bittersweet, garlic mustard, bush honeysuckle, boxwood sp.-27.5%	Japanese honeysuckle, English ivy, Virginia creeper, Japanese knotweed- 5%
14. Number of standing dead trees 6" dbh or greater	1	3	0
15. Comments	Good/fair condition	Good/fair condition	Good/fair condition

02/28/2025
MARYLAND DNR QUALIFIED PROFESSIONAL DATE
NAME: ALEX NUSSBAUM
ADDRESS: 700 EAST PRATT ST., SUITE 500
BALTIMORE MD, 21202
PHONE:(443) 996-4066
EMAIL:ANUSSBAUM@RKK.COM

RK&K
P: 410.728.2900
700 East Pratt Street, Suite 500 | Baltimore, MD 21202
Engineers | Construction Managers | Planners | Scientists
www.rkk.com
Responsive People | Creative Solutions

PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION FOREST CONSERVATION PLAN TABLES AND DETAILS

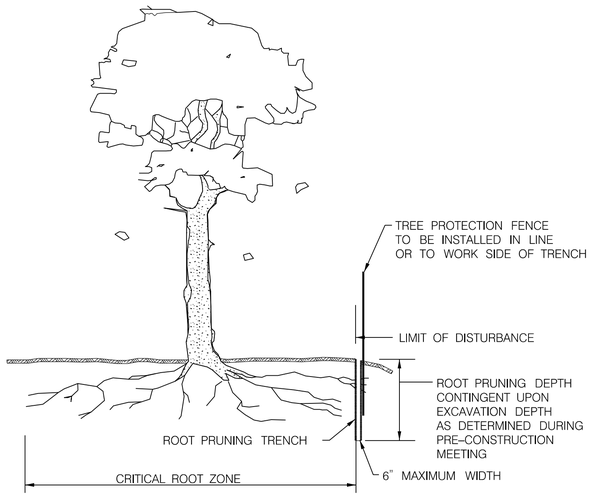
Drawn By : EH/HA
Designed By : AJN/EH/HA
Reviewed By : KDG

Scale : NOT TO SCALE
Date : FEBRUARY 2025

Drawing No. FCN-02 of FCN-04
Sheet No. 45 of 47

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1"=50'
BY: ehaight –

PLOTTED: 2/28/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\45_FCP-N002-Woodland.dgn



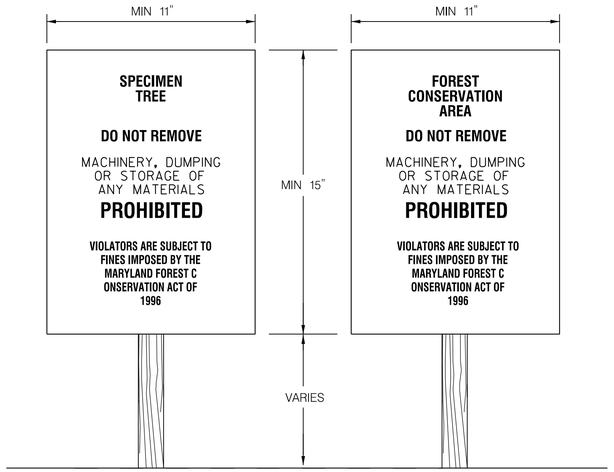
NOTES:

1. RETENTION AREAS TO BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
2. BOUNDARIES OF RETENTION AREAS TO BE STAKED, FLAGGED AND/OR FENCED PRIOR TO TRENCHING.
3. EXACT LOCATION OF TRENCH SHOULD BE IDENTIFIED.
4. TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH SOIL REMOVED OR ORGANIC SOIL.
5. ROOTS SHOULD BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT.
6. IN SOME INSTANCES, IT MAY BE BENEFICIAL TO PERFORM ROOT PRUNING AT THE EDGE OF EXCAVATION RATHER THAN AT THE LOD, PROVIDED THE ROOTS BETWEEN THE EXCAVATON AND THE LOD ARE PROTECTED DURING CONSTRUCTION.

ROOT PRUNING DETAIL

NOT TO SCALE

Source: Adapted from Steve Clark & Associates/ACRT, Inc, and Forest Conservation Manual, 1991



TREE PROTECTION SIGN DETAIL

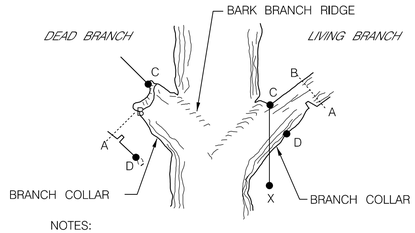
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NOTES:

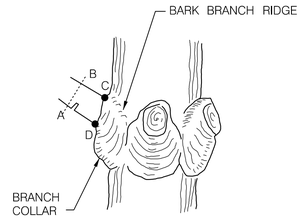
1. BOTTOM OF SIGNS TO BE HIGHER THAN TOP OF TREE PROTECTION FENCE.
2. SIGNS TO BE PLACED APPROXIMATELY 50 FEET APART. CONDITIONS ON SITE AFFECTING VISIBILITY MAY WARRANT PLACING SIGNS CLOSER OR FARTHER APART.
3. ATTACHMENT OF SIGNS TO TREE IS PROHIBITED.

Source: Ericson, T and Howell, G.P., eds (1997) State Forest Conservation Technical Manual, Maryland Department of Natural Resources

HARDWOODS



CONIFERS–FOR LIVING OR DEAD BRANCH

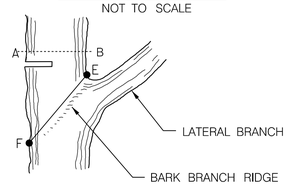


NOTES:

1. REMOVE BRANCH WEIGHT BY UNDERCUTTING AT A AND REMOVE LIMB BY CUTTING THROUGH AB.
2. REMOVE STUB AT CD (LINE BETWEEN BRANCH BARK RIDGE AND OUTER EDGE OF BRANCH COLLAR).
3. IF D IS DIFFICULT TO FIND ON HARDWOODS, ANGLE OF CD TO TRUNK SHOULD BE THE REFLECTIVE ANGLE OF THE BARK BRANCH RIDGE TO THE TRUNK.
4. ONLY PRUNE AT SPECIFIED TIMES.
5. REMOVE NO MORE THAN 30% OF CROWN AT ONE TIME.

PRUNING A BRANCH

NOT TO SCALE



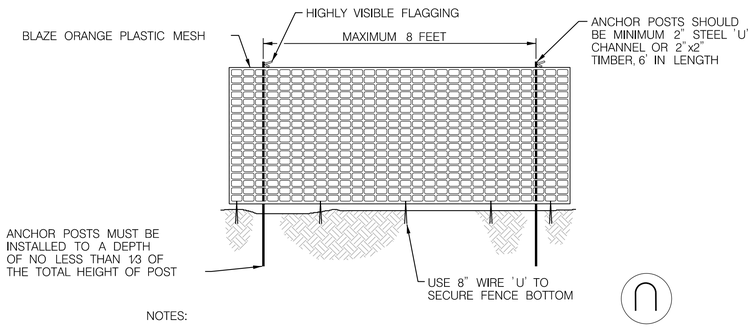
NOTES:

1. REMOVE TOP WEIGHT BY UNDERCUTTING AT A AND REMOVE LIMB BY CUTTING THROUGH AB.
2. REMOVE STUB AT EF PARALLEL TO THE BARK BRANCH RIDGE.
3. ONLY PRUNE AT SPECIFIED TIMES.
4. NO MORE THAN 30% OF THE CROWN TO BE REMOVED AT ONE TIME.
5. DIAMETER OF LATERAL BRANCH SHOULD BE NO LESS THAN 30% OF THE DIAMETER OF THE LEADER.

PRUNING A LEADER TO REDUCE SIZE

NOT TO SCALE

Source: Adapted from Steve Clark & Associates/ACRT, Inc.

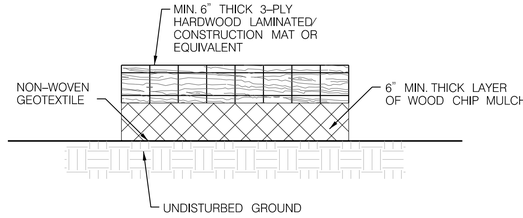


NOTES:

1. THE LOCATION OF TREE PROTECTION FENCE (TPF) SHALL BE STAKED AND FLAGGED PRIOR TO INSTALLING THE TPF. ALL AREAS OUTSIDE OF THE TPF SHALL BE DESIGNATED AS TREE PRESERVATION AREA (TPA). NO DISTURBANCE SHALL OCCUR WITHIN THE TPA.
2. ROOT DAMAGE SHOULD BE AVOIDED.
3. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

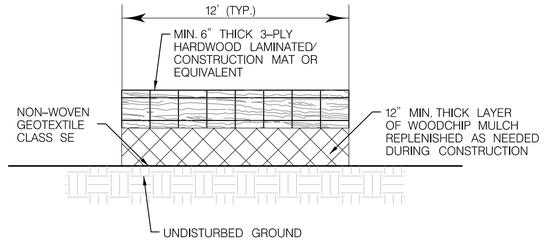
TREE PROTECTION FENCE

NOT TO SCALE



TIMBER MATTING FOR STOCKPILES

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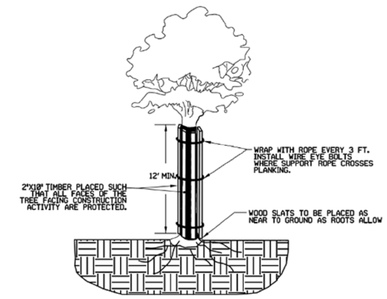


TEMPORARY MULCH ACCESS ROAD WITH TIMBER MATTING

NOT TO SCALE

NOTES:

1. ACCESS ROUTES TO BE VERIFIED BY THE ENGINEER AT PRE-CONSTRUCTION MEETING.
2. REVISIONS TO THE ALIGNMENT THAT MINIMIZE TREE DISTURBANCE ARE ENCOURAGED AND REQUIRE REVIEW AND APPROVAL OF THE ENGINEER.
3. GEOTEXTILE CLASS SE SHALL BE PLACED WITH SEAMS PARALLEL TO FLOW OF TRAFFIC. OVERLAP FABRIC BY 18" MIN. AT SEAMS.
4. CONTRACTOR SHALL MAINTAIN TEMPORARY ACCESS ROAD THROUGHOUT CONSTRUCTION PERIOD.
5. MULCH AND GEOTEXTILE PLACEMENT IS NOT REQUIRED IF THE ACCESS ROAD HAS EXISTING GRAVEL COVERAGE.



NOTES:
PROTECTIVE PLANKING SHALL BE ERECTED PRIOR TO CLEARING, GRADING OR CONSTRUCTION BEGINS. PROTECTIVE MEASURES SHALL REMAIN IN PLACE FOR THE DURATION OF CONSTRUCTION.

TREE PROTECTION PLANKING

NOT TO SCALE

Alex Nussbaum 02/28/2025
MARYLAND DNR QUALIFIED PROFESSIONAL DATE
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Responsive People | Creative Solutions

PROJECT CONTRACT #59882

GP #GRA-002122-2022

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION FOREST CONSERVATION PLAN TABLES AND DETAILS

Drawn By : EHHA
Designed By : AJNEHHA
Reviewed By : KDG
Drawing No. FCN-03 of FCN-04

Scale : NOT TO SCALE
Date : FEBRUARY 2025
Sheet No. 46 of 47

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE 1" = 1'-0"
BY: ehaight –
PLOTTED: 2/28/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\46_FCP-N003-Woodland.dgn

GENERAL NOTES

1. FOREST CONSERVATION PLANS WERE PREPARED BY ALEX NUSSBAUM, QP, LTE, CA, OF RK&K AT 700 E. PRATT STREET, SUITE 500, BALTIMORE, MD 21202. FROM FIELD DATA COLLECTED BY SARAH FALCONE, QP IN MAY, JUNE, AND OCTOBER 2018. REVERIFICATION OF THE FEATURES IDENTIFIED DURING THE 2018 INVESTIGATION WAS CONDUCTED IN JUNE AND JULY 2023.
2. THE PROJECT INVOLVES APPROXIMATELY 2,500 LINEAR FEET OF STREAM RESTORATION AND OUTFALL STABILIZATION.
3. THE PROJECT WILL IMPACT MULTIPLE PRIVATE PROPERTIES. SEE PROPERTY OWNERS AND ADDRESSES ON FCP SHEETS.
4. NO FEMA 100-YEAR FLOODPLAIN IS MAPPED WITHIN THE PROJECT AREA.
5. THE SITE DOES NOT CONTAIN WETLANDS OF SPECIAL STATE CONCERN AS DEFINED IN COMAR 26.23.06.01.
6. THE SITE IS LOCATED WITHIN THE BYNUM RUN WATERSHED, MDE 8-DIGIT WATERSHED 02130704. THREE PERENNIAL WATERWAYS, TWO INTERMITTENT WATERWAYS, AND FOUR PALUSTRINE FORESTED WETLANDS (PFO) WERE IDENTIFIED WITHIN THE PROJECT AREA. ALL WATERWAYS WITHIN THE STUDY AREA ARE CATEGORIZED AS USE CLASS III STREAMS.
7. THE SITE IS NOT LOCATED WITHIN FOREST INTERIOR DWELLING SPECIES (FIDS) HABITAT.
8. THE SITE IS NOT LOCATED WITHIN THE CHESAPEAKE BAY CRITICAL AREA (CBCA).
9. A TOTAL OF THREE FOREST STANDS AND 349 INDIVIDUAL TREES (≥12" DBH), INCLUDING 33 SPECIMEN TREES (≥30" DBH) WERE IDENTIFIED WITHIN THE PROJECT AREA. NO STATE CHAMPION TREES, OR TREES 75% OF THE STATE CHAMPIONS WERE IDENTIFIED ON SITE. FOR FURTHER DETAILS SEE THE TREE INVENTORY TABLE ON SHEET FCN-01. 18 SPECIMEN TREES WILL BE IMPACTED BY THE PROJECT. TREES WERE LOCATED USING TRADITIONAL SURVEY METHODS.
10. A RESPONSE FROM MHT REGARDING THE PRESENCE OF HISTORIC, CULTURAL, ARCHITECTURAL, OR ARCHAEOLOGICAL RESOURCES WITHIN THE STUDY AREA WAS RECEIVED ON JULY 17, 2023, INDICATING THE PROJECT WILL HAVE NO ADVERSE EFFECT ON HISTORIC PROPERTIES.
11. A LETTER WAS RECEIVED FROM THE MARYLAND DEPARTMENT OF NATURAL RESOURCES (DNR) ON JULY 31, 2023, STATING THAT THERE ARE NO RECORDS OF STATE OR FEDERALLY LISTED RARE, THREATENED, OR ENDANGERED (RTE) SPECIES WITHIN THE PROJECT AREA AND THE PROJECT DOES NOT POSE ANY SPECIFIC CONCERNS TO RTE SPECIES.

FOREST CONSERVATION NOTES

1. BRANCH PRUNE FOR EQUIPMENT CLEARANCE PER THE DETAIL PROVIDED ON SHEET FCN-03. BRANCH PRUNING TO BE COMPLETED UNDER THE SUPERVISION OF AN LTE.
2. ONLY REMOVE TREES ≥12" DBH AS MARKED FOR REMOVAL ON THE PLAN. ALL OTHER TREES ≥12" DBH SHALL REMAIN UNDAMAGED.
3. REMOVAL OF TREES NOTED FOR REMOVAL ON THE PLAN AND OUTSIDE OF THE LOD SHALL BE PERFORMED BY HAND, WITHOUT GROUND DISTURBANCE, OR DISTURBANCE TO NEARBY PRESERVED TREES. TREES IN THESE AREAS SHALL BE CUT FLUSH TO THE GROUND, WITHOUT STUMP GRINDING.
4. CUT NON-NATIVE/INVASIVE VINES GROWING ON TREES TO REMAIN WITHIN THE LOD.
5. AVOID UNNECESSARY COMPACTION TO THE GREATEST EXTENT PRACTICABLE WITHIN THE CRZ OF ANY SPECIMEN TREE TO REMAIN.
6. USE TIMBER MATTING AS DETAILED on SHEET FCN-03 FOR THE ENTIRE TEMPORARY ACCESS INSTALLATION AND FOR STOCKPILE AREAS OVER VEGETATION.
7. THE MITIGATION REQUIREMENT IS FULFILLED THROUGH THE ON-SITE PLANTING AREAS. ALL AVAILABLE AREAS WILL BE REFORESTED AND THE REFORESTATION DENSITY IS EQUAL TO OR GREATER THAN THE DENSITY OF THE EXISTING FOREST. REFER TO THE LANDSCAPE PLANS FOR LOCATIONS OF THE PLANTING AREAS.

SEQUENCE FOR TREE CONSERVATION PROCEDURES

1. THE LIMITS OF DISTURBANCE MUST BE FIELD MARKED PRIOR TO CLEARING OF TREES, INSTALLATION OF SEDIMENT CONTROL MEASURES, CONSTRUCTION, OR OTHER LAND DISTURBING ACTIVITIES.
2. AFTER THE LIMITS OF DISTURBANCE HAVE BEEN LOCATED IN THE FIELD, TREE PROTECTION FENCE WILL BE INSTALLED MANUALLY ALONG THE LIMITS OF DISTURBANCE AS SHOWN ON THE PLAN. SPECIMEN TREE PROTECTION SIGNS AND FOREST CONSERVATION AREA SIGNS SHALL ALSO BE INSTALLED AS SHOWN ON THE PLAN. HARFORD COUNTY DEPARTMENT OF PLANNING AND ZONING (DPZ, 410-638-3013) SHALL BE NOTIFIED FOR A PRE-CONSTRUCTION INSPECTION OF TREE PROTECTION DEVICES.
3. AT THE TIME OF THE PRECONSTRUCTION MEETING FOR THE PROJECT, THE TREE PROTECTION MEASURES SHALL BE IN PLACE, AND ANY REQUIRED STRESS REDUCTION TECHNIQUES (ROOT PRUNING, BRANCH PRUNING, ETC.) WILL BE DISCUSSED. A STAFF MEMBER FROM DPZ SHALL INSPECT AND APPROVE THE INSTALLATION OF ALL PROTECTION DEVICES BEFORE ANY GRADING SHALL BE PERMITTED.
4. THE STRESS REDUCTION MEASURES SHALL BE PERFORMED PRIOR TO COMMENCEMENT OF GRADING&BUILDING ACTIVITIES IN THE AFFECTED AREA. STRESS REDUCTION MEASURES SHALL BE PERFORMED UNDER THE SUPERVISION OF A MARYLAND LICENSED TREE EXPERT (LTE) AND MUST BE DOCUMENTED.
5. ALL PROTECTION DEVICES SHALL BE IN PLACE PRIOR TO ANY LAND CLEARING OR GRADING THAT OCCURS WITHIN 100 FEET OF A SPECIMEN TREE TO REMAIN.
6. NOTIFY DPZ (410-638-3013) 48 HOURS PRIOR TO THE START OF CONSTRUCTION.
7. DURING CONSTRUCTION, TREE PROTECTION DEVICES SHALL BE MAINTAINED, AND A MARYLAND LICENSED TREE EXPERT (PROVIDED BY THE CONTRACTOR) SHALL CONDUCT PERIODIC INSPECTIONS TO DETERMINE THE HEALTH OF THE TREES, AND ANY ADDITIONAL MEASURES THAT MUST BE TAKEN AS IT RELATES TO THE HEALTH OF THE TREES. ANY CHANGES TO THE PLANS, OR ADDITIONAL PROBLEMS CONCERNING THE TREES, MUST BE BROUGHT TO THE ATTENTION OF DPZ (410-638-3013) PRIOR TO IMPLEMENTATION OF ANY CHANGES. FIELD ADJUSTMENTS MAY BE SUBJECT TO APPROVAL OF AN AMENDED FOREST CONSERVATION PLAN.
8. FOREST PROTECTION DEVICES SHALL BE MONITORED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PHASE OF THE PROJECT. WHEN THE CONSTRUCTION PHASE OF THE PROJECT IS COMPLETE AND THE SEDIMENT IN THE SURROUNDING AREA IS STABILIZED, THE FOREST PROTECTION DEVICES SHALL BE REMOVED.
9. AT THE COMPLETETION OF THE CONSTRUCTION PROJECT, AN INSPECTION OF THE TREES SHALL BE CONDUCTED BY A MARYLAND LTE (PROVIDED BY THE CONTRACTOR). ADDITIONAL STRESS REDUCTION MEASURES OR MITIGATION MAY BE REQUIRED. THE TREE PROTECTION FENCE AND ANY OTHER TREE PROTECTION DEVICES CAN BE REMOVED WHEN APPROVED BY THE MARYLAND LTE.
10. ANTICIPATED CONSTRUCTION TIMETABLE
BID AND PROCUREMENT: OCTOBER 2025
CONSTRUCTION START: APRIL 2026
CONSTRUCTION COMPLETION: OCTOBER 2026

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10

HCG BILLING ID No.:

HCG DWG ID No.:

SCALE: 1"=50'

BY: ehaight –

Alex Nusbaum 02/28/2025
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Sheet No. 47 of 47

PLOTTED: 2/28/2025
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\47_FCP-N004-Woodland.dgn